

The Language Learning Achievement and School Life of Southeastern Asian Female Immigrants' Children in Taiwan

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ABSTRACT—Immigrants' children are disadvantaged due to language, cultural and social interactional conflicts between home and school. Immigrant parents who speak a foreign language often have less cultural capital to share with their children, weaker relationships with their children's teachers and less understanding of school norms. Immigrants' children were weaker in understanding of teachers' and classmates' expectations, which can limit their learning opportunities and yield less learning, compared to native children. This study would focus on 872 elementary school students, and it included 275 male elementary school students and 271 female elementary school students. Growth mixture model was applied with 3-year data in this study. With the result of the study, the elementary school students could be divided to 3 groups: low-level language learning achievement group, middle-level language learning achievement group, and high-level language learning achievement group. Group 1 students were weak in language learning, but the quality of peer relationship and environmental perception were growth. The language learning achievement of Group 2 students were better than Group 1 students, but weak than Group 3 students. Their quality of teacher-student relationship was decrease. Group 3 students did a good job in language learning, but the quality of teacher-student relationship, peer relationship, and environmental perception were decrease. For immigrants' children, most of them were Group 2 students. For residents' children, most of them were Group 3 students.

Keywords— Immigrants' children, Language learning achievement, School life, Growth mixture model

1. INTRODUCTION

As the number of female immigrants from Southeast Asia increases at Taiwan these years, and it mean more and more Southeastern Asian female immigrants' children was born in Taiwan. Immigrants' children were disadvantaged due to language, cultural and social interactional conflicts between home and school [1]. Usually, students whose native language is different from the language used for the instruction belong to the minority or immigrant groups that were economically disadvantaged compared to the other students [17]. Immigrant parents who speak a foreign language often had less cultural capital to share with their children, weaker relationships with their children's teachers and less understanding of school norms. Immigrants' children were weak in the understanding of teachers' and classmates' expectations, which can limit their learning opportunities and less learning, compared to native children [4].

Some studies pointed out that the learning achievement of new immigrants' children were not as well as residents' children, especial in language learning [1, 4, 17, 10]. But some studies supported that the learning achievement of new immigrants' children were the same as residents' children in school [11, 14, 20, 16].

Traditional data analysis only focused on single data in one time, and it is difficult to find the effect of variable change. Methods of latent growth curve analysis had emerged as a versatile tool for studying longitudinal change, and it was applied in many research areas. The purpose of this study was to investigate Southeastern Asian female immigrants' children's language learning achievement, teacher-student relationship, peer relationship, and environmental perception, and compare with residents' children with growth mixture model for the effect of the change of school life in three years.

1.1 The Teacher-student Relationship

The teacher-student relationship is the interaction of teachers and students. The interaction of students and teachers is one of the important processes of children's learning. The interaction of students and teachers is not only for learning, but also for the transpose of the values of life and learning attitude. Teachers should maintain an effective learning and efficient learning environment, and a good teacher-student relationship [24]. Elementary schools, teachers, students, and parents or guardians can improve teacher-student relationships and communications with information system for improve students' learning achievement [7]. A close and intimate teacher-student relationship is helpful in school learning [15].

In Chiang's study [2], most teachers think new immigrants' children are great, and are good in teacher-student

relationship. Chen [6] adopted purposive sampling to select 331 southeastern Asian female immigrants' children from third-grade to six-grade in the academic year of 92, and find Asian female immigrants' children are well in teacher-student relationship. Nurturing quality relationships between and among both teachers and peers may hold promise for enhancing learning [19]. Teachers' attitude is helpful in the success of the students' performance [18].

In Chin and Yu's study [3], the children of Southeast Asian immigrant mothers gained significantly lower scores for academic performance and teacher-student relationship than did the adolescents of native Taiwanese mothers. After interview four southeastern Asian female immigrants' children, Chen [5] point out that immigrants' children are weak in teacher-student interaction.

1.2 The Peer Relationship

The socialization of children is not only dependent on the assist of parents, but also peer group. Children can learn social skills, establishment of self-concept, and get a sense of security and comfort with the interaction of friends or classmates. In a school, students come from different family, and their socioeconomic background, habits, and concept are different. In the process of intricate interaction, secondary peer group be formed gradually. If the children adjustment well in the environment, it is helpful in socialization for children. If the children adjustment not well and conflict in the environment, it would become the obstacles on the children's school life.

Nurturing quality relationships between and among both teachers and peers may hold promise for enhancing learning [19]. Peers' understanding is helpful in the success of the students' performance [18]. Although the computer-assisted learning environment could help students to learn more quickly and conveniently, it is better for students to learn with peer relationship [12].

1.3 The Environmental Perception

The school is not only the place for learning knowledge, but also for life and feeling share. The relationship of interaction is generated in this place. The atmosphere that children feel in the school effect children's learning process and learning achievement strongly. Chen [5] fined that Asian female immigrants' children are well in environmental perception.

Summarize, the school life include children's interaction with teachers and peer group in the learning environment. This study focus on the new immigrants' children's teacher-student relationship, peer relationship, and environmental perception.

2. MATERIALS AND METHOD

This study focused on the language learning achievement and the school life of Southeastern Asian female immigrants' children. The research framework was as Figure 1. The school life included teacher-student relationship, peer relationship, and environmental perception.

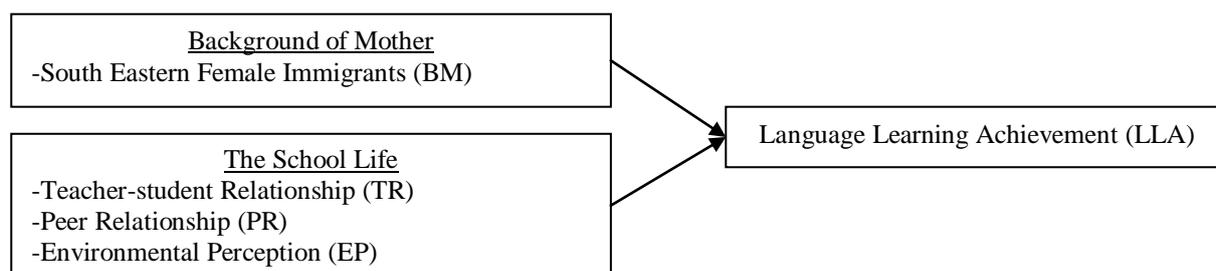


Figure 1: Conceptual Framework of This Study

2.1 Research Data

The research data was got from Wu's study [21] in the Survey Research Data Archive (SRDA) provided by the Academia Sinica in Taiwan. Wu's study was finished in July 31, 2007, and built the database of "The transected and longitudinal study of the southeast Asian immigrant women's parent-teacher interaction, children's self-efficacy, and school life in Taiwan". The research data was parts of this database.

The research data was got from three highest degree of urbanization regions that high ration of the number of new immigrant women marriage accounted for the proportion of total marriages in 2003 in Taiwan: New Taipei City, Taoyuan County, and Taichung City, and the three lowest degree of urbanization regions that high ration of the number of new immigrant women marriage accounted for the proportion of total marriages in 2003 in Taiwan: Yunlin County,

Pingtung County, and Penghu County. 150 southeastern Asian female immigrants that children study in elementary school were sampled in these six regions. The number of residents was the same as the number new immigrants in each region. The data was got one time one year in three years from 2005 to 2007.

There are 1554 records that include 777 new immigrants' records and 777 residents' records in Wu's study (2010). This study focus on 872 records that without missing value in 3-year language learning achievement. The missing value in these 872 records would be estimate with expectation-maximization (EM) in IBM SPSS 22.

The language learning achievement (LLA) in Wu's study [21] and this study was calculated with Equation 1. It was converted into the relative position of each subject's rank in the class. It could avoid the effect of class sizes on the rank. The language learning achievement in this study was calculated with Equation 1.

$$LLA = 1 - \frac{\text{Rank}}{\text{Class Size}} \quad (\text{Equation 1})$$

2.2 Research Tools

The school life included teacher-student relationship, peer relationship, and environmental perception [21]. The questionnaire of school life was being built in Huang's study [13].

Table 1: Items for the Teacher-student Relationship (TR)

Item	Questionnaire
TR01	I often get the teacher's praise.
TR02	I will take the initiative to help the teachers.
TR03	I like to talk with teachers.
TR04	When teacher quiz me, I would answer seriously.

Items for the teacher-student relationship (TR) were as Table 1. There were 4 items for TR. The questionnaire was answered with 5 Likert scale for measuring the relationship of the interaction of teachers and students in campus. TR is the attitude of interaction of teachers and students. The more scores mean the more positive attitude of teacher-student relationship.

Items for the peer relationship (PR) were as Table 2. There were 8 items for PR. The questionnaire was answered with 5 Likert scale for measuring the relationship of the interaction of classmates and classmates in campus. PR is the attitude of interaction of students and students. The more scores mean the more positive attitude of peer relationship.

Table 2: Items for the Peer Relationship (PR)

Item	Questionnaire
PR01	I am willing to share everything with classmates.
PR02	When I'm in trouble, my classmates would help me.
PR03	I would play with classmates.
PR04	It is funny that play with classmates.
PR05	It makes me happy that live together with classmates.
PR06	The classmates would like let me join in play game.
PR07	I would like to work together with classmates.
PR08	Classmates would like to work together with me.

Items for the environmental perception (EP) were as Table 3. There were 9 items for EP. The questionnaire was answered with 5 Likert scale for measuring the attitude of the feeling of environment. The more scores mean the more positive attitude of environmental perception.

Table 3: Items for the Environmental Perception (EP)

Item	Questionnaire
EP01	I like school.
EP02	I like go to school.
EP03	I like learn new knowledge.
EP04	I think the teachers in the school are very good.
EP05	The teaching aids in subject classroom are helpful for my study.
EP06	I think the teachers are fair in reward and punishment
EP08	I like study in subject classroom.
EP09	I like the play equipment and sports facilities in school.

The scale reliability of the questionnaire, mean, and variance in this study was as Table 4. The Cronbach's α of TR, PR, and EP all above .80, and they were good in internal consistency [8].

Table 4: Scale Reliability of the Questionnaire in this study

Scale	N	Mean	S.D.	Cronbach's α
The teacher-student relationship (TR)	4	2.32	.87	.81
The peer relationship (PR)	8	3.04	.85	.91
The environmental perception (EP)	9	2.99	.93	.87

2.3 Methodology of Data Analysis

The data analysis methodology in this study was combining the time-oriented factors. The research data was tested the trend of average change in longitudinal study with growth curve model and average structure analysis. This study would focus on one variable that changed and growth with time [8]. How the effect of research variables on the starting average and the direction of the trajectory of the target variable would be tested with the covariance analysis of growth mixture model that include language learning achievement (LLA), teacher-student relationship (TR), peer relationship (PR), and environmental perception (EP).

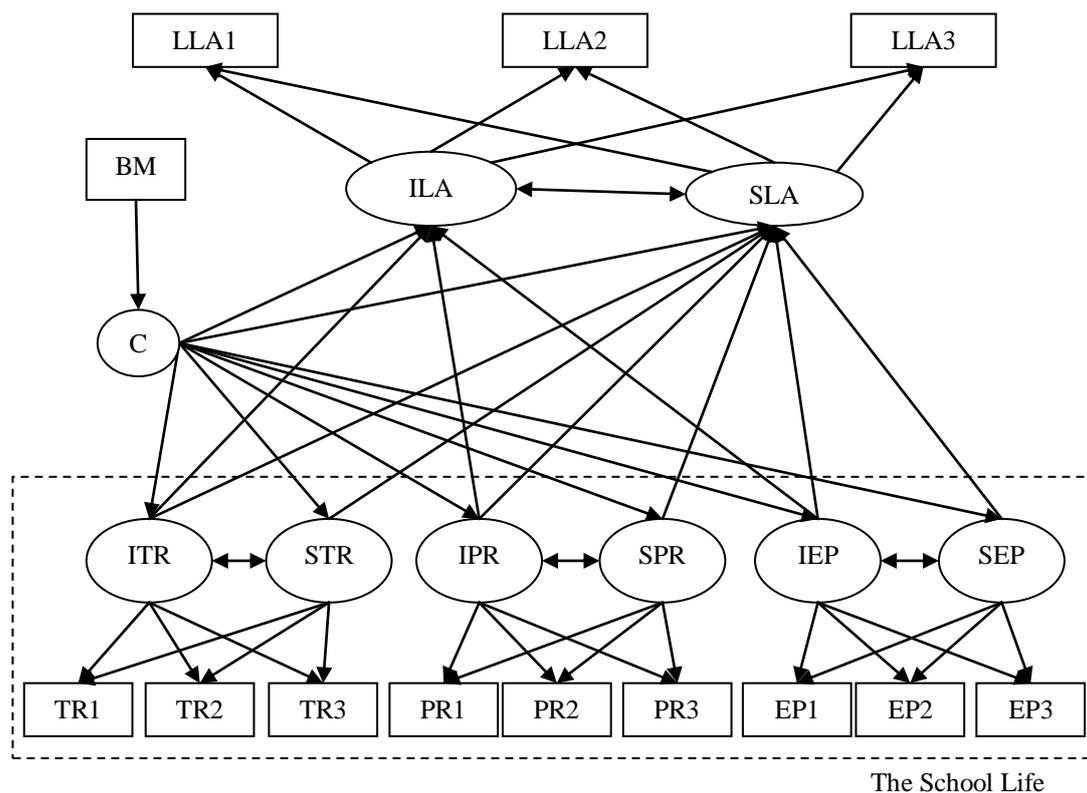


Figure 2: The Growth Mixture Model In This Study

First, the relationship of initial state and the change with time of language learning achievement would be tested with the intercept and slope of growth curve model of language learning achievement. Second, the effect of the teacher-student relationship, the peer relationship, and the environmental perception on language learning achievement would be tested with the growth curve model of language learning achievement. Third, the data would be analysis with growth mixture model with background of mother (BM).

The growth mixture model in this study was as Figure 2. The data of language learning achievement were got in 3 years (one year one time) for building the latent variable of intercept and slope (ILA and SLA) of 3 time points of language learning achievement (LLA1, LLA2, and LLA3), and the trace of language learning achievement in 3 years can be shown with the ILA and SLA in Figure 2. The change rate and direction of language learning achievement can be tested with ILA and SLA.

For testing the effect of the teacher-student relationship, the peer relationship, and the environmental perception on language learning achievement in different time, they all be build the latent variable of initial state (ITR, IPR, and IEP) and the change (STR, SPR, and SEP) based on 3-year data (TR1, TR2, TR3, PR1, PR2, PR3, EP1, EP2, and EP3).

The data would be analysis with Mplus 7.0. The fit situation of theoretical model and research would be shown with goodness of fit statistics, and the result would be shown with completely standardized solution.

3. RESULTS

Data analysis applies a multi-step approach in this study. First, the measurement model was tested by subjecting the measures to a series of confirmatory factor analyses. Second, a structural equation model with moderating variable was developed to test the hypotheses.

3.1 The Sample Summarize

The summarization of the research data in this study was as Table 5. There were 872 elementary school students in this study, and it included 275 male elementary school students (31.54%) and 271 female elementary school students (31.08%). 451 of them were southeastern Asian female immigrants' children (51.71%), and 421 of them were residents' children (48.28%). About the nationality of the mother, 421 of them were Taiwan (48.28%), 107 of them were Vietnam (12.27%), 234 of them were Indonesia (26.83%), 26 of them were Thailand (2.98%), 10 of them were Malaysia (1.15%), 29 of them were Philippines (3.33%), 42 of them were Myanmar (4.82), and the others were missing value in the nationality of the mother.

Table 5: Data summarize

Variable		Frequency	Percent (%)	
Gender	Male	275	31.54	
	Female	271	31.08	
	Missing	326	37.38	
Background of mother	New Immigrants	451	51.72	
	Residents	421	48.28	
The nationality of the mother	Taiwan	421	48.28	
	Vietnam	107	12.27	
	Indonesia	234	26.83	
	Thailand	26	2.98	
	Malaysia	10	1.15	
	Philippines	29	3.33	
	Myanmar	42	4.82	
	Missing	3	.34	
	City	New Taipei City	110	12.61
		Taoyuan County	132	15.14
Taichung City		125	14.33	
Yunlin County		206	23.62	
Pingtung County		106	12.17	
Penghu County		193	22.13	
Total		872	100.00	

3.2 Measurement Model

Table 6, 7, 8 presents standardized loading and other metrics for the item measures as well as reliability and validity measures. A sample of 150 respondents. Chi-square test of model fit was 1442.65 (df=53, p-value<.01), RMSEA was .17, CFI was .66, TLI was .51, and SRMR was .17.

3.2.1 The School Life and Language Learning Achievement

Table 6: The Assessing of measurement model of the school life (SL)

Item	Estimate	S.E.	t-value
ITR→ILA	.16*	.05	3.03
IPR→ILA	.13*	.06	2.21
IEP→ILA	.19*	.08	2.36
ITR→SLA	<-.01	.04	-.12
IPR→SLA	-.04	.05	-.71
IEP→SLA	.02	.05	.45
STR→SLA	.08	.08	.96
SPR→SLA	-.06	.07	-.91
SEP→SLA	.05	.08	.63
ITR↔STR	<.01	.01	-.07
IPR↔SPR	.02	.01	1.70
IEP↔SEP	.01	.01	1.70

*: p-value<.05

The result of the effect of school life on language learning achievement was as Table 6. It could be found that early TR, PR, and EP were effect on the early the language learning achievement. The early TR, PR, and EP play an important in language learning achievement.

3.2.2 Grouping

The entropy of two and three were as Table 7, and the entropy of three groups were largest. Entropy level of 0.6 or higher was sufficiently good class separation.

Table 7: The entropy of groups

N of Groups	Entropy
2	.59
3	.75

The data summarize of these three groups in this study in three years was as Table 8. There were 21 students in Group 1, and they all were immigrants' children. There were 482 students in Group 2, and 279 of them were immigrants' children and 203 of them were residents' children. There were 369 students in Group 3, and 151 of them were immigrants' children and 218 of them were residents' children.

Table 8: Data Summarize of Three Groups in Three Years

Group	N	Background		Mean (S.E.)		
		Immigrants	Residents	Year 1	Year 2	Year 3
1	21	21(100.00%)	0(.00%)	.32(.29)	.39(.27)	.35(.28)
2	482	279(57.88%)	203(42.12%)	.43(.29)	.41(.30)	.40(.30)
3	369	151(40.92%)	218(59.08%)	.62(.30)	.60(.29)	.59(.29)

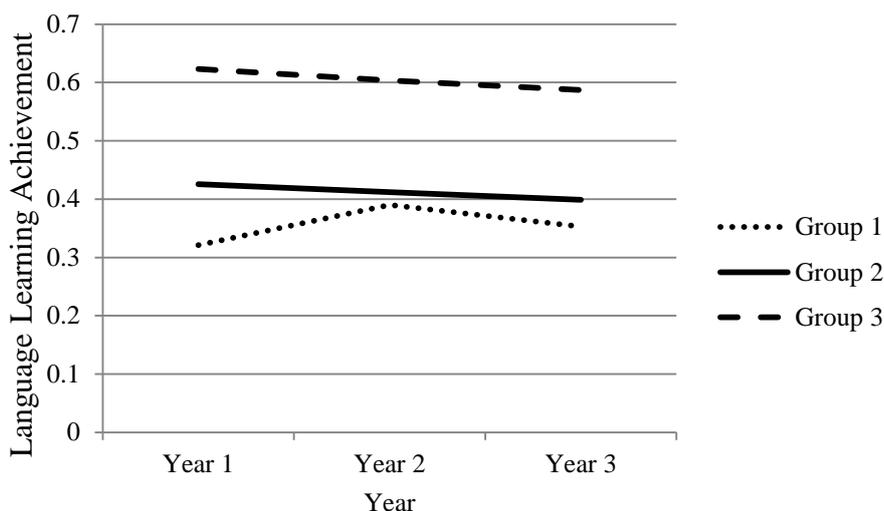


Figure 3: The language learning achievement curve of three groups in three years

With the figure of the language learning achievement curve of three groups in three years was as Figure 3, it could find that the language learning achievement of Group 3 was higher than other group. Group 1 was last one. So Group 1 was low-level language learning achievement group, Group 2 was middle-level language learning achievement group, and Group 3 was high-level language learning achievement group. The estimate of the factors of language learning achievement of Group 1, Group 2, and Group3 were as Table 9, Table 10, and Table 11.

3.2.3 Group 1: Low-level Language Learning Achievement Group

Table 9: The estimate of group 1

	Estimate	S.E.	t-value
ITR	1.60*	.11	14.46
STR	.09	.08	1.13
IPR	1.85*	.11	17.60
SPR	.54*	.08	6.61
IEP	2.05*	.09	22.54
SEP	.33*	.08	4.00

*: p-value<.05

In Group 1, the quality of peer relationship and feeling of environmental perception were growth (SPR and SEP), but the quality of teacher-student relationship was in a bottleneck situation (See Table 9). The language learning achievement was the weakest in three groups (See Figure 3). Not many children were in this Group 1 (See Table 8).

3.2.4 Group 2: Middle-level Language Learning Achievement Group

In Group 2, the quality of teacher-student relationship was decrease (STR). The peer relationship and feeling of environmental perception were not change (SPR and SEP) (See Table 10). The language learning achievement was the second in three groups (See Figure 3). Many children were in this Group 2 (See Table 8).

Table 10: The estimate of group 2

	Estimate	S.E.	t-value
ITR	2.27*	.03	74.96
STR	-.11*	.02	-4.92
IPR	2.88*	.03	107.03
SPR	.03	.02	1.50
IEP	2.88*	.02	119.26
SEP	.04	.02	2.17

*: p-value<.05

3.2.5 Group 3: High-level Language Learning Achievement Group

In Group 3, the quality of teacher-student relationship, peer relationship, and the feeling of environmental perception were decrease (STR, SPR, and SEP) (See Table 11). The language learning achievement was the best in three groups (See Figure 3).

Table 11: The estimate of group 3

	Estimate	S.E.	t-value
ITR	2.87*	.04	79.68
STR	-.30*	.03	-12.19
IPR	3.43*	.03	107.61
SPR	-.15*	.02	-6.79
IEP	3.28*	.03	129.24
SEP	-.15*	.02	-6.62

*: p-value<.05

3.2.6 Background of Mother

The estimate of the number of immigrants' children and residents' children in three groups with Group 3 as the reference group was as Table 12.

For Group 1, the estimate number of immigrants' children and residents' children can be shown as Equation 2. The number of immigrants' children in Group 1 was .14 times ($e^{-1.98}$) of the number of immigrants' children in Group 3. The number of residents' children in Group 1 was .14 times ($e^{-1.98}$) of the number of residents' children in Group 3.

$$e^{\ln\left(\frac{Group1}{Group3}\right)} = e^{-1.98} \quad (\text{Equation 2})$$

Table 12: Immigrants' and residents' children in three groups

	Group 1	Group 2	Group 3 (Reference)
Intercepts	-1.98*	.55*	-
Slope	-27.82	-.62*	-
The ratio for 3 groups:			
Immigrants' Children	.14	1.73	1.00
Residents' Children	.14	.93	1.00

*: p-value<.05

For Group 2, the estimate number of immigrants' children and residents' children can be shown as Equation 3. The number of immigrants' children in Group 2 was 1.73 times ($e^{0.55}$) of the number of immigrants' children in Group 3. The number of residents' children in Group 2 was .93 times ($e^{-0.08}$) of the number of residents' children in Group 3.

$$e^{\ln\left(\frac{Group2}{Group3}\right)} = e^{0.55-0.62BM} \quad (\text{Equation 3})$$

The ratio of estimate number of immigrants' children in three groups was .14:1.73:1.00, and the ratio of estimate number of residents' children in three groups was .14:.93:1.00. It could be find that most immigrants' children was in Group 2, and the second was in Group 3. Most residents' child was in Group 3, and the second was in Group 2. Minimum number of immigrants' children and residents' children in Group 1.

4. CONCLUSION

The early quality of teacher-student relationship, peer relationship and the early feeling of environmental perception would affect early language learning achievement. The relationship of language learning achievement and school life of elementary school students could be divided into three groups. Group 1 was as a low-level language learning achievement group, Group 2 was as middle-level language learning achievement group, and Group 3 was as high-level language learning achievement group. Group 1 students were weak in language learning, but the quality of peer relationship and environmental perception were growth. The language learning achievement of Group 2 students were better than Group 1 students, but weak than Group 3 students. Their quality of teacher-student relationship was decrease. Group 3 students did a good job in language learning, but the quality of teacher-student relationship, peer relationship, and environmental perception were decrease. For immigrants' children, most of them were Group 2 students. For residents' children, most of them were Group 3 students.

Most of immigrants' children were Group 2 students that language learning achievement were weak than Group 3, but the growth of peer relationship and environmental perception were not inferior to Group 3. Most of residents' children were Group 3 students that language learning achievement was better than Group 3, but the growth of peer relationship and environmental perception were inferior to Group 3. So most language learning achievement of residents' children were better than immigrants' children. This result was the same as Mohammadpour [17], Akar [1], Chiu and Chow [4] and Ho [10].

No matter what group these elementary school students belong, they all need the help of improve the quality of teacher-student relationship. For low-level language learning achievement students, most of them were immigrants' children, teachers should focus on how to improve their language learning achievement. For high-level language learning achievement students, most of them were residents' children, teachers should focus on how to improve their quality of school life.

5. ACKNOWLEDGEMENTS

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