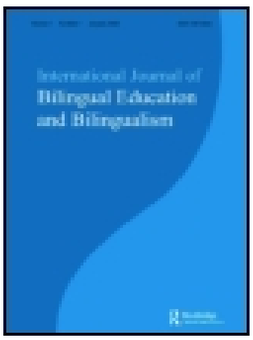

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The influence of Hakka language immersion programs on children's preference of Hakka language and cross-language*

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ABSTRACT

This study examined whether one Taiwan's heritage language immersion influences children's preference for the heritage language or cross-language. The research questions are: (1) What are children's attitudes toward the Hakka language (HL)? Does a significant difference exist in children's attitudes between those in the Hakka Language Immersion Program (HLIP) and children not participating in the program? (2) What are children's language preferences? Is there a significant difference in children's language preference between HLIP and non-HLIP (NHLIP)? This study used a causal comparative method to identify relationships between independent and dependent variables after the HLIP was implemented. The participants were selected from one HLIP ($n = 37$) and one NHLIP ($n = 39$). Both groups of children received a pretest and posttest, namely, the 'HL attitude measurement test,' which included 'HL opinion' and 'language preference' tests and had satisfactory reliability and validity. This study used covariate analysis to determine if a significant difference could be observed. The results demonstrated that the preference for the HL or cross-language in the HLIP was not significantly higher than those in the comparison group. Nevertheless, the children's HL preference in the cognitive domain and cross-language preference in the behavior domain exhibited a significantly positive effect.

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Hakka immersion program; Hakka language attitude; cross-language attitude; heritage teaching

Introduction

The languages of Taiwan mainly include Taiwanese Hokkien, Hakka, Aboriginal language, and Mandarin. After World War II, Taiwan enforced the 'Mandarin only' policy. During this period, Mandarin was promoted as the main official and mainstream language, resulting in a major loss of Taiwan's local languages (Hong 2013). After the year 2000, the awakening of local language consciousness leads to the establishment of laws and regulations regarding protecting and revitalizing local languages. Local languages are now required as the formal curriculum in elementary schools. Public TV and radio stations were also established for the local languages. Hakka people, who speak the Hakka language, are mainly distributed in Taoyuan, Zhongli, Hsinchu, Zhudong, Miaoli, Pingtung, and Kaohsiung County in Taiwan. Currently, the Hakka Affairs Council is the major institution that maintains the Hakka language to prevent its loss (Hakka Affairs Council 2020).

Although the effort of maintaining Hakka dialects, the use of Hakka dialects has been scant. Only 13% of Hakka students under the age of 13 can speak fluent Hakka dialect (Hakka Affairs Council 2020). In order to prevent the loss of the Hakka dialect, the Pingtung County of Taiwan experimentally launched

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*Children's language attitudes across two languages (Van Hell and Tanner 2012). In this study, the languages researched are Hakka and Mandarin Chinese.

the Hakka Language Immersion Program (HLIP) in three preschools in year 1996. The experimental programs were successful, research showed that the HLIP can successfully raise children's Hakka language speaking and listening abilities without having negative effects on other aspects of learning (Chen, Chen, and Tsai 2009). Thus, the HLIP has become one of the popular Hakka language teaching program.

However, Chen (2013) found that the frequency and quality of using Hakka language in the HLIP is not stable and depend on the types of interaction and activity. Regarding the interaction with peers, children tended to have higher rate of using Mandarin Chinese than Hakka language. Tabouret (2017) indicated that the language use of individuals in different contexts symbolizes their identity and attitude toward the language. If an individual agrees with a language and has a positive attitude, the person will have stronger motivation to use the language spontaneously (Lewis, Jones, and Baker 2013). Thus, this study aimed to understand whether the HLIP can promote positive attitudes toward the Hakka language among children or foster a cross-language preference. Such understanding can aid the comprehension of why children do not actively speak the Hakka language and as well as the improvement of children's motivation to use it voluntarily. According to the above research purposes, the research questions of this study are as follows:

(1) What are children's cognitive, affective, and evaluative attitudes toward the Hakka language in the HLIP? Do significant differences exist in these attitudes toward the Hakka language between children in the HLIP and children not in the program (NHLIP)?
(2) When the Hakka language and Mandarin Chinese are compared, what are the children's language preferences of the HLIP and the NHLIP children? Is there a significant difference in children's language preference between the HLIP and the NHLIP? What are factors that affect children's language preferences?

Literature review

Heritage language immersion

Heritage language immersion teaching is mainly based on the basic assumption of the natural approach – learning a second language presupposes natural acquisition of the language in an environment with rich language input and use (McIvor and Parker 2016). In addition, in language immersion programs, the heritage language is used as the language of instruction. Learners do not learn the heritage language as an individual subject but rather use it as their primary language for communication. Hence, children are immersed in real language use contexts to acquire heritage language abilities naturally (Genesee 2013). Most heritage immersion programs do not involve 100% immersion. Mixed-language modes (heritage language mixed with the mainstream language) are used frequently as a teaching strategy to ensure learning success. Thus, the learning environment often contains hybrids of language and culture (Palmer, Ballinger, and Peter 2014). Heritage language immersion programs have been used in many countries to preserve endangered heritage languages (e.g. Maori, Hawaiian aboriginal languages), and they have worked well (Brinton, Kagan, and Bauckus 2017). Although Taiwan has also worked on preserving heritage languages for more than 10 years, insufficient teaching hours and supporting facilities (e.g. teaching materials) have limited the efficacy of preservation programs (Zhang 2016). Therefore, Taiwan has recently launched heritage language immersion programs to preserve endangered heritage languages (Ministry of Education 2018). HLIP is one of the heritage language immersion programs in which Hakka language is conducted as the main communicating and teaching language for a minimum of 50% of school time (Chen and Tsai 2011).

Attitudes of immersion students toward languages

Studies have determined that heritage language immersion teaching has a significant effect on improving children's heritage language abilities (Brinton, Kagan, and Bauckus 2017). Besides, the

other important goal of heritage language immersion teaching is to enhance children's recognition and positive attitude towards heritage language, their culture and identity (Leeman 2015). However, research on Taiwan's heritage language immersion programs has mainly focused on their influence on language abilities; their impact on children's language identities or attitudes is rarely studied.

Earlier research revealed that language immersion students have a more positive attitude toward cross-language (Van Hell and Tanner 2012) and culture. For example, immersion teaching has a positive impact on children's attitudes regarding the target language (Block 2012; Lindholm-Leary 2011; Potowski 2007). Lindholm-Leary (2011) used a questionnaire to investigate the language attitudes of 600 two-way immersion (TWI[1]) students. The results indicated that the vast majority of students reported being comfortable interacting with groups both similar to and different from their own. Most students enjoyed studying through two languages. Block (2011) reported that parents perceived that their children in English–Spanish TWI programs developed positive cross-cultural attitudes, with positive attitudes toward both English-speaking and Spanish-speaking families. De Jong and Bearse (2011) discovered that 89% of Latinos and 97% of Anglos in TWI indicated that they enjoyed learning Spanish and English and had a greater appreciation of other languages and ethnicities. Lindholm-Leary (2011) similarly determined that more than half of the students in Mandarin and English TWI programs liked Chinese culture because of their daily exposure to Chinese language and cultural activities. Several studies have revealed that in TWI teaching of mainstream and heritage languages, student attitudes toward heritage languages are more positive (Block 2011; Lindholm-Leary and Genesee 2014). Bearse and De Jong (2008) investigated secondary school students' perceptions of their participation in a Spanish–English TWI program and discovered that all students evaluated linguistic and cultural equity positively. Potowski (2007) determined that English and Spanish TWI students had a more positive attitude toward the Spanish language compared with peers who did not participate in immersion programs. In addition, Downes (2001) investigated Japanese students' attitudes towards Japanese language, culture, and Western culture in the 5th, 6th and 7th grade English immersion programs. The results showed that although students loved English, students' favor of Japanese culture and language does not decrease. In other words, research findings on language immersion teaching do not suggest that participation in language immersion programs leads to negative attitudes toward a language. Most studies have determined that language immersive children have more positive perceptions of different languages and cultures.

The evaluation of language attitude

Lasagabaster and Sierra (2012) defined 'language attitude' as a person's favor or preference for language-related things. Language attitudes can sometimes not be directly assessed, but can be inferred from the individual's beliefs, feelings, and behavioral intentions. Preston (2013) argued that language attitudes include four elements: cognition, emotion, evaluation and behavioral orientation. Cognition refers to the individual's awareness and understanding of the language; emotion refers to the individual's emotional response to language; evaluation is the evaluation of linguistic value; behavioral intention refers to the individual's intention to conduct actual behavior related to the language. Although the language attitude has many of the above aspects, the assessment tools have limitations. Most of the tools can only measure specific elements. For example, some assessment tools require participants to respond to a questionnaire or interview questions that simply ask their opinions regarding one or another language (Coronel-Molina 2014). The Westside Test Anxiety Scale (Driscoll 2007) was used to evaluate affective anxiety in learning a language. Another language learning attitudes questionnaire used Likert scales to collect affective and evaluative aspects of language attitudes (Abidin, Pour-Mohammadi, and Alzwari 2012). Aliakbari and Gheitasi (2017) employed a questionnaire to assess anxiety and attitudes toward foreign language learning. Nevertheless, because the four elements of language attitude are mostly interactive, a certain degree of language attitude can still be evaluated.

At present, Taiwan's most relevant method for language attitude research is the questionnaire survey method, which directly asks the students' attitudes toward the language through the questionnaire (e.g. Wang 2010). In addition, the widely used method in foreign countries is to interview students' views on media (e.g. book, music, TV, etc.) conducted in different languages through structured interviews (e.g. Lindholm-Leary 2011). Whether a questionnaire or a structured interview, it is necessary to formulate questions related to the language attitude in advance. However, presenting a pluralistic orientation of language attitude is difficult because language attitude may change depending on the time and situation (McKenzie and Carrie 2018). Thus, the analysis of the data obtained from a questionnaire or interview can only reveal individuals' attitudes at a specific moment. In addition, questionnaire respondents are inclined to fill in answers that meet social expectations, rather than reveal their real language attitudes (Dörnyei and Taguchi 2009). Moreover, such studies are only suitable for school-age children with more mature cognitive development and are not suitable for preschool children with limited cognitive and literacy skills (McKenzie and Carrie 2018).

Another method often used to assess the language attitude of preschool children is called the Matched-guise technique (MGT). MGT was first used by Lambert in the 1960s to explore the attitude of Canadian English-French bilinguals' attitude toward languages. The MGT practice enables children to listen to the same person speaking both French and English (the same person speaks different languages, except for the language, other variables are controlled the same), and then asked the children to evaluate the speaker's educational level, status, affinity and other characteristics (Reynolds 2014). Because other variables are controlled, 'language attitude' is the key basis for children's responses. For example, in all other identical situations, children are asked to assess the appearance and ingenuity of the English and French speakers (subjects did not realize that the speaker was the same person). If one speaker is evaluated as smarter, the only factor that affects the children's evaluation is the attitude toward the language. In this way, Lambert successfully assessed subjects' stereotypes and perception of different languages. Therefore, MGT is widely used in studies comparing attitudes toward languages, dialects, and phonetic voices (Loureiro-Rodriguez, Boggess, and Goldsmith 2013; Reynolds 2014).

ptHowever, the MGT approach has its shortcomings. Researchers have pointed out that although MGT can moderately express a person's language attitude, it cannot effectively predict individual's behavior (Reid and Anderson 2010). In addition, Soukup (2012) indicated that in the MGT test, students are sometimes asked to select and compare, but the children may have a positive perception of both languages. Under the forced choice, the child's 'preference' is presented, but it does not mean that the child has a negative attitude toward the other. Therefore, in the more recent MGT studies, students are less obliged to make a choice between two languages (Liebscher and Dailey-O'Cain 2017). Students can choose either language, none, or ordering the preference of the languages. In addition, Soukup (2012) argued that students may be affected by the ethnicity of and language used by the tester (e.g. the tester speaks English, then the learner tends to prefer English), so it is best to use two languages at the same time, or two languages are used in turn to avoid the effects of the tester's variables. Soukup also demonstrated that the order in which the languages are presented also affects young children's responses. Young children tend to be more impressed by the later appearances. Therefore, if the language is presented in a random rather than a fixed order, the results will be more credible.

Factors affecting language attitude

From the perspective of sociolinguistics, the language attitudes of young children are constructed in the interaction between children and society (McKenzie and Carrie 2018). Therefore, to understand young children's language attitude, understanding how they use the languages in society is also necessary (McKenzie 2010). For example, Chen (2013) revealed that young children must decide whether to speak their heritage language (i.e. Hakka language) or Mandarin Chinese when they enter preschools. Since most teachers and young children speak Mandarin Chinese, children have to use Mandarin Chinese if they want to be accepted in the peer social groups. Most teachers also

believe that children have to use Mandarin Chinese to achieve learning goals. Therefore, children gradually construct a social language in which heritage language is regarded as low-level and low-status language, and finally form a negative view on heritage language. Therefore, from the perspective of sociolinguistics, children participating in an immersion program may be influenced by interaction with immersion class members (e.g. teachers, children) and other children (Chen 2013).

In addition to schools, parents' beliefs and community values surrounding the language may influence the language attitudes of young children (Suek 2014). In the early years of Taiwan's implementation of the 'Chinese Mandarin Movement', the heritage language was devalued through mass media. The impression that the heritage languages were not as good as the Mandarin Chinese was deeply rooted. The Mandarin Chines was regarded as a symbolic of elegance; the heritage language was regarded as devalued (Huang 2011). Therefore, the attitudes of young children and those of their parents toward their heritage language may be affected by external negative views in society. Wang and Peng (2018) analyzed three national surveys and identified three major factors contributing to Hakka language loss: (1) the promotion of a national language (i.e. Mandarin) through the media, (2) massive migration from Hakka villages to urban areas, and (3) ethnic intermarriages. As a result, Hakka children are more familiar with Mandarin Chinese and perceive it as having higher status than the Hakka language.

In addition, Gardner (2010) argued that an individual's language attitude is strongly related to their motivation to learn a language. Gardner (2010) divided motivation into instrumental and integrative motivation. Instrumental motivation refers to motivation to obtain education, work, social status, and other related interests. Integrative motivation refers to an individual's desire to integrate into a specific community through its language. If a language can provide individuals with strong instrumental and integrative motivation, learners tend to have a more positive attitude toward it. In particular, if a learner feels a strong need to be integrated into a society, they tend to prefer the mainstream language and abandon their heritage language. Schumann's (1986) acculturation hypothesis, which focuses on two main variables, 'social distance' and 'psychological distance,' accounts for differences in the way language learners approach and acquire language and culture. The 'social distance' refers to the proximity of individual's cognition and emotion when two languages and cultures come into contact. The 'social distance' is influenced by two variables: (1) The dominance of two languages: Which language group is more politically or economically dominant? Which one is more affiliated? (2) The integration of two languages: Is there any language or culture that wants to be assimilated? (3) Integration and difference: Which language group has more population? What are the differences and similarities between the two languages and cultures? (4) The living time and distance of the two language groups: Psychological distance refers to the psychological state of the individual who learn the second language (e.g. nervousness, fear, etc.) (Zaker 2017). Learners with greater psychological and social distance from a language are likely to make less effort to interact with members of social groups who use that language. By contrast, learners with less psychological and social distance from a language are likely to make greater efforts to form bonds with culturally similar others who speak that language. Therefore, psychological and social distance influence an individual's language attitudes and behaviors (Culhane 2004).

Method

Research design

This study was conducted by a causal comparison study. The participants were selected from one HLIP preschool and a non-immersion (NHLIP) preschool. The main criteria used in selecting participants from the HLIP preschool were as follows: (1) Participating in the HLIP for more than three years; (2) The HLIP class had won excellent immersion teaching prize; (3) the children's demographics (i.e. age, socioeconomic status [SES]), teacher backgrounds, and teaching resources of the HLIP preschool were similar to those of the NHLIP preschool. The experimental design is shown in Table 1.

Table 1. Experimental design.

Groups	Assign	Pretest 2017, August	Experimental Process	Posttest 2018, June
Experimental HLIP	*R*	Favorable attitude toward the Hakka language Language preference	Hakka Language use exceeds 50% of school time	Favorable attitude toward the Hakka language Language preference
Control NHLIP	*R*	Favorable attitude toward the Hakka language Language preference	Chinese Language Dominant Teaching with little Hakka language teaching	Favorable attitude toward the Hakka language Language preference

R: Randomly assigned to experimental and control groups.

The participants of the experimental and control groups were randomly assigned. Both groups received a pretest and posttest for evaluating their attitudes toward the Hakka language and their preferences regarding Mandarin Chinese and the Hakka language. The pretest was conducted in August 2017 and the posttest in June 2018. In the HLIP, the Hakka language was spoken by preschool teachers and children during daily routines and teaching activities (e.g. group discussions) for at least 50% of school time. In the NHLIP, children learned Hakka language and cultural occasionally, but the use of the Hakka language did not exceed 50% of school time. Both the HLIP and NHLIP groups were located in a Hakka community.

Research participants

The experimental and control groups were composed of private preschool students whose families (above 95%) had middle-high SES levels. The resources and equipment for the HLIP and NHLIP were similar. The teachers in both had graduated from university and majored in early childhood education. The participants were selected from one HLIP ($n = 37$) and one NHLIP ($n = 39$) in Pingtung County, which is located in southern Taiwan. The basic information for participating children is shown in Table 2:

Data collection

In this study, the collection of data was mainly carried out by means of the MGT interviews. The MGT interviews were conducted in a one-on-one manner, and the testers were early childhood education students who had been trained for four hours. The interview time for each child is less than 15 minutes. The location of the interview was conducted in a quieter classroom in the preschools. In order to enhance the motivation of the children, each child was told before the interview that a small gift would be obtained if the interview was completed. If the child is not willing to continue to be interviewed in the middle, he can end the interview at any time and still receive a small gift. In order to avoid the influence of language used by the tester and the way the questions were asked, all the test questions had been recorded in two languages (i.e. Hakka language and Mandarin Chinese) in the notebook computer. The testers only needed to play the file so that the interview can be conducted in a consistent way. The following is a description of the MGT interviews:

Table 2. Participants' information.

Groups	Experimental (HLIP)			Comparison (NHLIP)		
Classes	*N*	RH	boy： girl	*N*	RH	boy: girl
5–6 years old	16	100%	3:13	17	65%	7:10
4–5 years old	12	100%	4:8	9	67%	5:4
3–4 years old	9	100%	6:3	13	69%	7:6
Total	37	100%	13:24	39	67%	19:20

RH: Ratio of Hakka children.

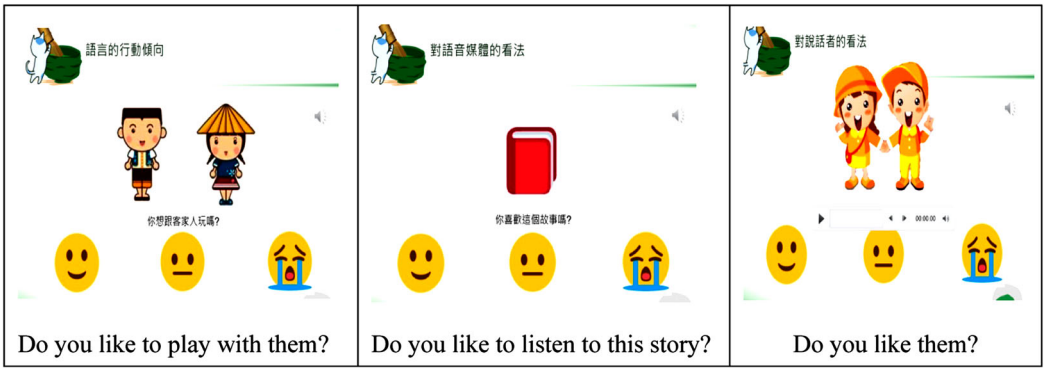

Figure 1. Example images used to measure attitudes toward the Hakka language.

1. Attitudes toward the Hakka language

The main purpose of this measurement was to assess children's attitudes toward the Hakka language. The MGT test was used by asking children to indicate whether they liked things related to Hakka language or culture. All pictures shown in the computer screen were accompanied by the Hakka language utterance (see Figure 1). After watching the pictures and listening to the Hakka language, the children had to use magic wand to indicate their favor response. Children were told the different meanings of each face: smiling face means 'like', so-so face means 'no feeling', and sad face means 'dislike'.

The test questions included the 14 items shown in Table 3.

The assumption was made in the present study that children in the HLIP would have a more favorable attitude toward the Hakka language because they spent more time in contact with the language.

1. Language preference

The main purpose of this measurement is to evaluate children's preference of Mandarin Chinese and Hakka language in the situation of two language shows at the same time. The MGT test was used again to evaluate children's language preferences, with a small difference. In the language preference MGT test, each question requires the child to choose 'prefer' or 'like both' with identical pictures – one with a Mandarin Chinese utterance and the other with a Hakka utterance. A notebook computer was used to present the pictures. Testers asked children to watch the pictures and listen to the utterances accompanied by them (Figure 2). The illustrations and other variables were controlled the same except for the language utterance. Next, children were asked to use the magic wand to point to their choice. Children could choose one or both. In addition, because Soukup (2012) determined that the order in which languages appeared affects the responses of young children, the order of

Table 3. Attitudes toward the Hakka Language: Interview Questions.

Perception of Hakka Media (MP) Play Hakka show, rhyme, song and story	Perception of Hakka Speaker (SP) Present Hakka speaker image (roles are boys and girls alternatively to avoid gender bias)	Perception of Hakka Behavior (AP) Present things related to Hakka language
• Do you like this show? • Do you like this nursery rhyme? • Do you like this song? • Do you like this story?	• Is this person very smart? • Is this person very beautiful/handsome? • Is this person very popular? • Is this person very good? • Is this person very polite?	• Do you want to learn the Hakka language? • Do you want to play with Hakka people? • Will you speak Hakka with your friends? • Do you want to sing Hakka songs? • Do you want to go to the Hakka school?

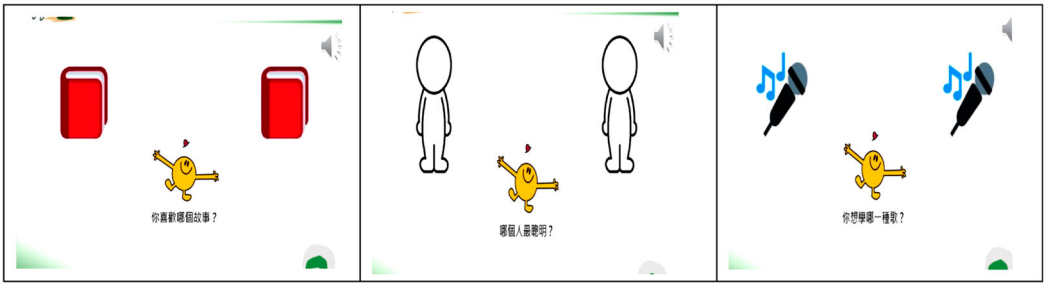

Figure 2. Example pictures of language preference measurement.

two languages' utterances appeared alternatively in the interview. The 'language preference' interview questions included the 19 test items listed in Table 4.

Before each formal interview began, the testers asked three questions to ensure that the child understood how to participate in the interview. The three test questions were not scored. The interview was conducted by two research assistants, one was responsible for operating the computer and interacting with the child, and one was responsible for scoring. Considering that many NHLIP children cannot understand the problem spoken in Hakka language, the testers used both Mandarin Chinese and Hakka language as the main interview guiding languages.

2. Reliability and validity

After the interview content was first designed, it was tested by four children to help researchers modify the interview protocols and ways of conducting them. Next, interview protocols were viewed by three experts and revised based upon experts' suggestions for expert validity. In terms of reliability, the researcher selected 30 preschool children in a HLIP preschool to do the pretest. After that, Kuder-Richardson reliability test was used for the reliability test. The KR20 value of the 'attitudes toward the Hakka language' is between 0.78 and 0.83; the KR20 value of the 'language preference' is between 0.79 and 0.84. Both measurements have good reliability and validity.

Data analysis

After all the data was collected, SPSS statistical software was used to analyze the following research questions.

1. Favorable attitude toward the Hakka language

The way to score children's responses was: smiling face: 4 points; so-so face: 2 points; sad face: 0 points. Next, the researcher added the total scores of each aspect of favor (i.e. MP, SP, AP) for Hakka language as: favoring Hakka (FH) = MP + SP + AP. Fourteen test items were used. The maximum score for the test was 56 points. Firstly, researcher used covariate analysis to compare whether there is a significant difference between the HLIP and NHLIP groups. The study assumed that HLIP children are immersed in Hakka language so that children would have higher FH than NHLIP.

2. Language preference

According to the choice of children's language preference, the scores of each question were given according to the following rules: '1 point' was given if the image of the language utterance was selected; '0 point' was given if the image of the language utterance was not selected. For example, when a child was asked 'what kind of person do you want to be?', the child chose the image of Hakka language utterance. Then, '1 point' was be given to the 'Hakka language Preference

Table 4. Language preference questions.

Cognitive（CP）	Affective（AP）	Evaluative（EP）	Action（RP）
• Which one is Hakka language? • Which one do you think you are? • Who do you want to be? • Which one do you like the most?	• Which program do you prefer? • Which music do you prefer? • Which chanting rhyme do you prefer? • Which song do you prefer? • Which story do you prefer?	• Which one is smarter? • Which one is more pretty/handsome? • Which one is more popular? • Which one is better? • Which one is more polite?	• Which language do you want to learn? • Whom do you want to play with? • What kind of language do you want to speak with your friends? • Which song do you prefer to sing? • Which school do you prefer to go to?

(HP)', '0 point' was given to the 'Chinese language Preference (CP)', and '0 point' was given to the 'Cross-Language Preference (BP) The scoring method was shown in Table 5.

Next, the total scores of children's cognitive, affective, evaluative, and action aspects in 'Hakka Language Preference' (HP) and 'Cross-Language Preference' (BP) were calculated. Finally, the researcher summed the four aspects of HP and BP and compared whether there was significant differences in HP and BP between the HLIP and the NHLIP groups. Nineteen test items were used. The maximum score for the test in HP or BP was 19 points. This study hypothesized that the HLIP children would have higher scores of HP and BP than those of the NHLIP because of the long contact with Hakka language in immersion environment.

Results

Favorable attitude toward Hakka language

The study found that there is no significant difference in the FH between the two groups. The results are shown in Table 6.

Table 6 shows that both the HLIP and the NHLIP have no significant improvement in the FH, MP, SP and AP. Under the influence of the pretest results, it is further explored whether the posttest performance of the TH of the HLIP is significantly higher than that of the NHLIP, and the general linear mode needs to be further adopted. The *F*-value of the results of the regression homogeneity test within the group = .01, $p = .92 > .05$, does not reach a significant level, and accept the null hypothesis. The relationship between the co-variation term (pretest score) and the dependent variable (posttest score) will not be different because of the group. So, it can be continued in accordance with the homogeneity assumption of covariate analysis. The covariate analysis summary table shows that, after eliminating the influence of the pretest score on the posttest score, the effect of the HLIP on the FH is not significant. The *F*-value = .29, $p = .59 > .05$ does not reach a significant level, indicating that the children's posttest scores will not be different because of the group factor.

Language preference

The results of the study on children's language preference are shown in Table 7.

The results of the study show that there is no significant difference in their pretest and posttest of Hakka language preference (HP) between the HLIP and the NHLIP children except for the cognitive

Table 5. Scoring method of language preference.

Child choice	HP	CP	BP
Choose Hakka	1	0	0
Choose Chinese	0	1	0
Choose both	0	0	1

Table 6. Favorable attitude toward the Hakka language.

		pretest		posttest				
Aspects	Groups	*M*	SD	*M*	SD	Average progress	[?][c]	[?]
FH	HLIP[a]	46.72	12.00	46.56	11.47	−0.17	−0.09	0.93
	NHLIP[b]	39.03	13.74	40.82	13.26	1.79	0.93	0.36
MP	HLIP	13.44	3.90	13.11	3.36	−0.33	−0.53	0.60
	NHLIP	10.82	4.67	11.28	4.32	0.46	0.66	0.52
SP	HLIP	16.61	4.73	17.00	3.99	0.39	0.59	0.56
	NHLIP	14.46	5.14	14.92	5.09	0.46	0.56	0.58
AP	HLIP	16.67	4.54	16.44	5.64	−0.22	−0.23	0.82
	NHLIP	13.74	5.41	14.62	5.53	0.87	1.03	0.31

[a]HLIP（*N*=36）；[b]NHLIP（*N*=39）；[c]The degree of freedom of the *t*-test is *N*−1.

aspect ($p < .05$). The posttest scores of HLIP children are 0.417 points on average higher than their pretest scores. There is no significant difference between the HLIP and the NHLIP in terms of children's pretest and posttest scores except for cognitive aspect of HP. Nevertheless, if the class size is double, there will be a significant difference, which can show that HP of the posttest score is significantly higher than that of the pretest preference. In addition, the researchers find that the correlation coefficient of the pretest and posttest paired data is low (about half of the aspect is not significant) regardless of the HLIP or the NHLIP. Thus, researcher speculates that children's HP is not stable during the measurement.

Next, researcher explores whether there is a significant difference in the language preference scores under the 'group' factor. Considering the influence of 'pretest scores', researcher further explores whether the HLIP children's language preference and posttest scores are significantly higher than those of the NHLIP. So, the general linear model is conducted to do the further analysis. The related information of the model is shown in Table 8:

Table 8 shows that in the general linear mode, 'posttest-action-prefer both' is affected by 'pretest' and 'group × pretest'. In the covariance analysis section, only the 'posttest-cognitive-prefer Hakka' is affected by the 'group' factor. The rest for the 'posttest' is not affected by the 'group' factor. Only the 'posttest-cognitive-prefer Hakka', 'posttest-cognitive-prefer both' and 'posttest-evaluative-prefer Hakka' are not affected by 'pretest'. The rest aspects of 'posttest' are influenced by the 'pretest'. In other words, 'posttest-cognitive-prefer both' and 'posttest-evaluative-prefer Hakka' are neither affected by 'group' nor by 'pretest.' So, these two aspects are not put into Table 9.

According to the analysis of Tables 8 and 9, the regression coefficient of F-test and t-test indicate that the scores of the 'posttest-cognitive-prefer Hakka' will be affected by the 'group' factor, but will not be affected by the 'pretests' score. The result indicates that under the same score of 'pretest-cognitive-prefer Hakka', the score of 'posttest-cognitive-prefer Hakka' in the NHLIP group is 0.449 points

Table 7. Children's language preference in different aspects.

		pretest		posttest				
HP aspects	Group	*M*	SD	*M*	SD	Average progress	*t*-value3	*p*
Cognitive- HPa	HLIP1	1.33	.986	1.75	1.025	**0.417**	2.036*	**0.049**
	NHLIP2	1.23	.777	1.28	.916	0.051	0.274	0.786
Affective- HP b	HLIP	1.61	1.202	1.50	1.108	−0.111	−0.549	0.586
	NHLIP	1.21	.978	1.44	1.209	0.231	1.086	0.284
Evaluative- HP c	HLIP	1.97	1.362	2.56	1.611	0.583	1.709	0.096
	NHLIP	1.67	1.243	1.87	1.321	0.205	0.881	0.384
Action-HP d	HLIP	2.17	1.320	2.42	1.680	0.250	0.884	0.383
	NHLIP	1.62	1.206	1.90	1.410	0.282	1.009	0.320
Total HP	HLIP	7.08	3.384	8.22	4.473	1.139	1.595	0.120
	NHLIP	5.72	2.554	6.49	3.292	0.769	1.669	0.103

[a]Cognitive prefer Hakka language; [b] Affective prefer Hakka language; [c] Evaluative prefer Hakka language; [d] Action prefer Hakka language.
[1]HLIP（*N*=36）；[2]NHLIP（*N=39*）；[3]The degree of freedom of the t test is *N*−1.

Table 8. Language preference measured by the general linear mode or the covariance analysis of the posttest in the groups' *F*-test.

	General linear	Covariance analysis			
variables	PO-A-B1	PO-C-H2	PO-C-B3	PO-A-H4	PO-A-B5
Groups	.659	4.060*	.000	.130	.376
Pretest	18.465***	2.075	.657	10.860**	21.471***
Group × pretest	4.554*				
		Covariance analysis			
Variables	PO-E-H6	PO-E-B7	PO-A-H8	PO-TH9	POTB10
Groups	3.345	.022	.935	1.172	.004
pretest	2.781	25.114***	5.205*	20.749***	49.408***

1Posttest-action-prefer both；2Posttest-cognitive-prefer Hakka；3Posttest-cognitive-prefer both；4Posttest-affective-prefer Hakka；5Posttest-affective-prefer both；6Posttest-evaluative-prefer Hakka；7Posttest-evaluative-prefer both；8Posttest-action-prefer Hakka；9Posttest-prefer Hakka total；10posttest-prefer both total ； *p< .05. **p< .01. ***p< .001.

Table 9. Parameter estimation in groups of posttest mode of children's preferences in different aspects.

	General linear		Covariance analysis					
	PO-A-B1		PO-C-H2		PO-A-H3		PO-A-B4	
variables	coeffi9	*T*	coeffi	*t*	coeffi	*t*	coeffi	*t*
Intercept	0.185	1.093	1.505	6.436***	0.879	3.356**	0.405	3.027**
NHLIP	0.197	0.812	−0.449	−2.015*	0.092	0.360	−0.103	−0.613
Pretest	0.726	4.348***	0.184	1.440	0.386	3.296**	0.473	4.634***
~~NHLIP × Pretest~~	~~−0.482~~	~~−2.134*~~						
Covariance analysis								
	PO-E-B5		PO-A-H6		PO-TH7		PO-TB8	
Variables	coeffi	*T*	coeffi	*t*	coeffi	*t*	coeffi	*t*
Intercept	0.227	1.526	1.728	4.403***	3.836	3.417**	0.655	1.803
NHLIP	0.028	0.148	−0.344	−0.967	−0.889	−1.083	−0.027	−0.062
Pretest	0.394	5.011***	0.318	2.281*	0.619	4.555***	0.528	7.029***

[1]Posttest-action-prefer both；2posttest-cognitive-prefer Hakka；3posttest-affective-prefer Hakka；4posttest-affective-prefer both；5posttest-evaluative-prefer both；6posttest-action-prefer Hakka；7posttest-prefer Hakka total；8posttest-prefer both total；9： Regression coefficient estimate；*p< .05. **p< .01. ***p< .001.

lower than the HLIP group. It shows that the HLIP teaching has a significant positive effect on the 'posttest-cognitive-prefer Hakka'. In addition, the 'posttest-affective-prefer Hakka' is affected by their 'pretest' score, but not by the 'group' factor.

According to the general linear model of Tables 8 and 9, the t-test and the regression coefficient of F-test indicate that the 'posttest-action-prefer both' score is influenced by the 'pretest' score and the 'pretest × group'. As the 'pretest-action-prefer both 'increases 1 point, the HLIP children's 'posttest-action-prefer both' increases 0.726 points on average; and the NHLIP children's 'posttest-action-prefer both' increases by (0.726-0.482) points an average. That is, the NHLIP children's 'posttest-action-prefer both' scores increases by 0.482 points less than the HLIP. The result shows that the HLIP has a significant positive effect on the increase in children's 'posttest-action-prefer both' scores.

Conclusion and discussion

The results indicate that the HLIP had a significant positive impact on the cognitive aspect of children's preference for Hakka, which demonstrates that the HLIP helped children to connect with the Hakka language and Hakka people and objects. In addition, the HLIP had a significant positive effect on enhancing the action aspect of children's cross-language preference, which can help children develop an attitude of multilingual and multicultural identity. No other significant improvement effects on other aspects of Hakka or cross-language preference were identified, which suggests that the HLIP should adopt more effective classroom strategies to improve the status of the heritage language. The discussion of the research findings are listed below:

Previous language immersion teachings have found that immersion teaching has a positive impact on children's attitude of the target language (Block 2012; Lindholm-Leary 2011; Potowski

2007). Lindholm-Leary (2011) found that second language immersion teaching can break the language stereotype and have a positive attitude towards cross-language. However, this study did not determine that the HLIP can significantly enhance attitudes toward the Hakka language or cross-language preference, except for the 'cognitive' and 'action' aspects of cross-language preference. The difference in findings has the following possible explanations. (1) sample size is not big enough: This study found that if the class size is double, there will be a significant difference which show that Hakka preference of the posttest score is significantly higher than the pretest preference. Therefore, bigger sample size of each class is suggested for the future research; (2) the effect of the high pretest score: this study found that several aspects of children's posttest scores are influenced by their pretest scores (e.g. posttest-action-prefer both), which may limit the score increase in the posttest because the pretest already had high scores in attitudes toward the Hakka language and cross-language; (3) the HLIP is a hybrid language and cultural environment: The HLIP is not a full immersion program; a mixed-language mode (Hakka mixed with Mandarin Chinese) is frequently used. The hybrid language and cultural environment may not let children develop strong affective or evaluative attitudes toward a specific language; (4) social and psychological distance: in terms of Schumann's (1986) theory of social and psychological distances, both the HLIP and NHLIP children live in Hakka community, the social distance between children and the Hakka language is close. The language attitude of young children may be influenced by their family or community members, which may explain why the children in the NHLIP also had more positive attitudes toward the Hakka language than did the HLIP children. In addition, the researchers noted that not all children have good Hakka language abilities, which make them have difficulty communicating or participating some activities. This difficulty may cause psychological distance to become big and leads to the resistance of favoring Hakka language. Thus, the researcher suggests that future research address participants' language abilities during participant selection.

In addition, this study revealed that the MGT test used for evaluating young children's language attitudes should emphasize features such as 'playfulness' (i.e. using a wand to point to answers), visualization (i.e. emoticon answers), and trials (i.e. conducting trial questions before conducting the formal test) to meet the unique needs of young children. Furthermore, Soukup (2012) mentioned that children sometimes exhibit a positive perception of both languages; in the present study, we observed that children felt more relaxed when they were not forced to choose between two languages. Therefore, the MGT test was suggested to add 'both' as an option for young children's language preference.

Implementation

With reference to the results, the following suggestions are made for the implementation of the HLIP:

Keep promoting heritage language immersion program

This study found that the HLIP can promote the cognitive aspect of a favorable attitude toward the Hakka language and the action aspect of cross-language preference. Therefore, the HLIP is helpful for children to link the Hakka language with Hakka people or items. In addition, the action aspect of cross-language preference can help the children develop an attitude of multilingual and multicultural identity. Therefore, it is suggested that the Hakka language immersion programs can be continuously promoted to preserve Hakka language and promote their positive attitudes toward the language.

Plan strategically to improve the attitude of the heritage language

This study does not show that the HLIP promote children's favorable attitude toward Hakka language in all aspects. To further develop children's positive attitude and identity of the language, the heritage language immersion program is suggested to adopt plans purposely to improve the status of the

heritage language in the classroom. Teachers involved in an immersion program are advised to use classroom management techniques such as reward system, praise, slogan and other incentive strategies to enhance the status of heritage language in children's mind. In addition, children's language attitude is not only determined by the school but also by the family and community. Therefore, it is recommended that teachers should enhance parents' awareness of promoting the status of heritage language at home. Teachers and parents should emphasize the importance and meaning of the heritage language to children. Discussion of self-identity and self-awareness can be designed in the formal curriculum. Related policies can also be planned to systematically promote the reinvigoration of the heritage a language to promote children's heritage language identity and positive attitude.

Note

1. Two-way immersion is a dual-language educational model that integrates students from two language groups for instruction in both of their languages for all or most of the day. The goals of TWI are to promote high academic achievement, first- and second-language development, and cross-cultural understanding in all students (Lindholm-Leary, 2005).

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