The associations of parental support with first-grade primary school L2 Chinese learners' ideal selves, motivation, engagement, and reading test performance in Hong Kong: A person-centered approach

Abstract

Research Findings: With a sample of 390 non-Chinese speaking first-grade primary school students and their parents in Hong Kong, this study examines associations between parental support and students' ideal selves, motivation, engagement, and Chinese reading test performance. Latent profile analysis (LPA) identified four groups of students (low-, moderate-, and high-ideal learners and ambivalent learners). Except for those ambivalent learners, students' ideal Chinese selves were positively associated with motivation to study Chinese. LPA models with external variables showed that high-ideal learners were the most engaged in learning, followed by ambivalent, moderate- and low-ideal learners. High-ideal learners had significantly higher Chinese reading test scores than low-ideal learners, but not the other two groups. Meanwhile, parent-child Chinese reading activity was the most effective predictor of students' group memberships, whereas number of Chinese books at home the least effective.

Practice or policy: The results affirm the important role of parental support in young L2 learners' learning, suggesting that parents should spend time reading with their children to increase the kids' motivation, learning engagement, and academic performance.

Introduction

Second language (L2) learners' emotional and behavioral factors in language learning have drawn considerable attention from language education practitioners and researchers around the globe. Building on possible selves theory (Markus & Nurius, 1986) and self-discrepancy theory (Higgins, 1987), Dörnyei (2005, 2009) developed the L2 Motivational Self System (L2MSS) that includes three components: the ideal L2 self, the ought-to L2 self, and the L2 learning experience. The ideal L2 self refers to "one's possible future self as a successful L2 speaker", and the ought-to L2 self refers to "the qualities that one should possess to avoid negative consequences" (Iwaniec, 2014, p. 68). Meanwhile, the L2 learning experience is one's "situated, 'executive' motives related to the immediate learning environment and experience", which is greatly shaped by important others, such as parents (Dörnyei, 2009, p. 29). The L2MSS framework provides an illuminating perspective from which to examine L2 learners' visions of possible selves and learning experiences, as well as their interplay in shaping students' emotions and behaviors in L2 learning. Over the past decade, empirical studies conducted in different contexts and with various samples have generally confirmed the validity and explanatory power of this framework (e.g., Hessel, 2015; Papi et al., 2019; You & Dörnyei, 2016). Despite the sizable body of research following this line of inquiry, "a significant majority (72.67%) of empirical investigations was committed to the study of English as an L2" and "the largest participant group is made up of college/university students" (Boo et al., 2015, p. 151). Meanwhile, Dörnyei and Al-Hoorie (2017) have noted that "LOTEs (language other than English) are usually associated with a specific community that 'owns' the L2", and that researchers should consider the role of sociocultural context in the learning of LOTEs (p. 465). Therefore, it is imperative to extend the research on the L2MSS by including young L2 learners studying LOTEs in different

regions of the world. This can provide additional empirical evidence for the L2MSS framework by adding voices from different educational levels and with diverse community-based sociocultural characteristics.

Hong Kong is an international city with an increasing number of ethnic minorities. According to the latest official thematic report, the population of ethnic minorities in Hong Kong witnessed a 70.8% increase from 342,198 in 2006 to 584,383 in 2016 (Census and Statistics Department, 2016). After 1997, the Hong Kong government introduced the "Biliteracy and Trilingualism" policy, which stipulates that Hong Kong residents are expected to be able to use Chinese and English for writing, and Cantonese, English, and Putonghua for oral communication. There have been growing needs from non-Chinese speaking (NCS) students to learn Chinese in Hong Kong since the introduction of this policy (Li & Chuk, 2015). Therefore, NCS students in Hong Kong are an ideal subject for analyzing L2 students' motivation to study LOTEs.

Drawing on the L2MSS framework, this study examined the role of parents (one aspect of the L2 learning experience) on primary school NCS students' ideal Chinese selves, motivation, engagement, and Chinese reading test performance. Specifically, latent profile analysis (LPA) with external variables was employed to conduct primary data analyses, as researchers have repeatedly cautioned that using traditional data analytic approaches, such as structural equation modeling (SEM) and regression analysis, may not fully capture the nuanced, complex features of L2 learners' motivational systems (Boo et al., 2015; Ushioda, 2009).

Literature Review

The Ideal L2 Self and its Relationship with Motivation, Engagement, and Academic

Achievement

As a key component in the L2MSS framework, the ideal L2 self is closely related to motivation to study the target language. When L2 learners perceive a discrepancy between their ideal and current selves, "the 'ideal L2 self' is a powerful motivator to learn the language because of the desire to reduce the discrepancy between our actual and ideal selves" (Dörnyei, 2009, p. 29). Numerous empirical studies have reported the positive association between the ideal L2 self and motivation in various contexts (e.g., Busse, 2013; Hessel, 2015; Iwaniec, 2014). For instance, with a sample of 97 German university L2 English learners, Hessel (2015) investigated the effects of four properties of the ideal L2 self (i.e., accessibility, perceived self-discrepancy, desirability, and plausibility) on L2 learning motivation. Multiple regression results indicated that only the first three properties were significant predictors of students' levels of L2 learning motivation (see Hessel, 2015, for a review of the properties of the ideal L2 self).

Engagement and academic achievement are the other two variables often linked to the ideal L2 self (Hessel, 2015; You & Dörnyei, 2016; Zhang et al., 2020). Engagement refers to "students' active involvement in a learning activity" and includes four sub-dimensions: cognitive, behavioral, emotional, and agentic engagement (Reeve & Lee, 2014, p. 528). Students with positive future images are expected to actively engage in learning activities to reduce the discrepancy between their ideal future selves and their current actual selves (Hessel, 2015). Researchers have consistently observed that the ideal L2 self is a significant predictor of students' engagement in L2 English learning, such as intended learning effort (Moskovsky et al., 2016) and willingness to communicate within and outside of English classrooms (Lee & Lu, 2021). Meanwhile, the ideal L2 self, with its close associations with motivation and intended learning effort, may lead to better academic achievement (Dörnyei

& Chan, 2013). Some early research reports a weak positive (Dörnyei & Chan, 2013; Lamb, 2012) or even negative (Moskovsky et al., 2016) relationship between the ideal L2 self and English academic achievement. However, recent research has confirmed that the ideal L2 self can indeed contribute to students' improved English proficiency, such as writing (Tsao et al., 2021) and listening and speaking (Zhang et al., 2020). Although only secondary school (Dörnyei & Chan, 2013; Lamb, 2012; Lee & Lu, 2021; Reeve & Lee, 2014; You & Dörnyei, 2016) and university (Hessel, 2015; Moskovsky et al., 2016; Tsao et al., 2021; Zhang et al., 2020) L2 English learners are involved in extant studies, these findings have established a foundation for the present research. We expect young L2 learners, such as primary school NCS students, to be motivated by their ideal L2 selves to engage in target language learning activities and achieve good academic performance.

Compared to the extensive research on L2 English learners' ideal selves, existing literature on L2 learners studying LOTEs is still limited. With the increasing presence of NCS students in Hong Kong, researchers have begun to analyze these students' learning activities within the L2MSS framework (Gu & Cheung, 2016; Lai, 2019; Lai & Tai, 2021; Wong, 2018). With a sample of 390 secondary school students and using SEM, Gu and Cheung (2016) found that the ideal L2 self could contribute to intended L2 learning effort, and that acculturation to mainstream culture was a significant mediator. Concerning the relationship between the ideal L2 self and academic achievement, Wong (2018) observed that NCS students' ideal Chinese selves were positively and weakly (standardized path coefficients around .20) associated with their Chinese reading test scores, mediated by their motivated learning behaviors. Notably, in the four above-mentioned empirical studies, only Wong (2018) involved primary school students as participants, which echoes Boo et al.'s (2015) argument that there is a "virtual absence of systematic research on the motivation of

primary school pupils" (p. 156). More importantly, except for Gu and Cheung (2016), these studies did not take into account the influence of significant others, such as parents, on NCS students' learning activities. Parents may have considerable impacts on young L2 learners' learning, particularly for NCS students living in an unfamiliar environment. Therefore, it is imperative to examine the influence of parental support on young L2 learners' language learning.

Parental Support in L2 Learning

Parents have been found to play a critical role in shaping L2 learners' learning experience (Iwaniec, 2014; Williams & Burden, 1997). Accordingly, researchers have identified the positive relationship between parental support and L2 learners' ideal L2 selves (e.g., Csizér & Kormos, 2009; Iwaniec, 2014; Sugita-McEown et al., 2017) and target language competence (e.g., Mori & Calder, 2017; Pinter, 2016; Sugita-McEown & McEown, 2019).

Using SEM, Csizér and Kormos (2009) observed that L2 learners' ought-to L2 selves were largely shaped by their parents' encouragement and support in the context of Hungarian secondary and tertiary education. This result is in line with the conventional view that one's ought-to self can be shaped by significant others, such as parents and peers (Higgins, 1987). Moreover, relying on SEM, Sugita-McEown et al. (2017) reported that parents can also greatly influence Japanese university L2 learners' ideal L2 selves. The authors interpreted this finding from a "cross-cultural psychological perspective", claiming that, for Japanese L2 learners, their parents' expectations for them have already become part of their ideal L2 selves, due to Asian culture and traditions (p. 542). In Hong Kong, Gu and Cheung (2016) found that parental encouragement was positively associated with NCS learners' intended

learning effort, mediated by their ideal Chinese selves. In general, parents can motivate their children to study the target language by actively engaging in the learning process. In addition, parental support can influence L2 learners' language competence, such as their reading ability. With a sample of 82 L2 English students and their parents in the context of US secondary education, Mori and Calder (2017) examined the role of parental support in English vocabulary development. By inviting parents to complete a family background questionnaire, the authors identified several key family variables conducive to children's language development, such as reading to the child and family conversation. Further, multiple regression results indicated that the frequency of children's English reading at home significantly predicted their English vocabulary development.

While existing research provides evidence for the contribution of parental support to students' increased L2 learning motivation and improved language competence, primary school students studying LOTEs are still underrepresented in extant studies. In addition, most studies in this regard rely on L2 learners' perceptions of their parents' support (e.g., Gu & Cheung, 2016), whereas few of them (e.g., Mori & Calder, 2017) include parents as participants. There may be discrepancies between students' own perceptions and their parents' actual involvement in their children's learning. Therefore, collecting data from parents directly may provide more accurate information concerning the influence of parental support on students' L2 learning.

LPA Model with External Variables in Language Education Research

In reviewing the existing literature, we found that traditional approaches (e.g., SEM and multiple liner regression) took the dominant positions in quantitative studies. However, considering "the complexity and idiosyncrasy of a person's motivational responses to

particular events and experiences in their life" (Ushioda, 2009, p. 219), Boo et al. (2015) illustrated the shortcomings inherent in these traditional approaches and predicted that "the field will see further changes in terms of methodological advances" (p. 156). SEM and regression analysis are referred to as variable-centered analyses (Laursen & Hoff, 2006; Yao et al., 2021a). These approaches assume homogeneity within a sample; that is, all participants have similar characters, though this is an assumption that is often violated in actual situations. Thus, person-centered approaches have been developed to capture the heterogeneity of participants (Laursen & Hoff, 2006; Yao et al., 2021a).

As a person-centered approach, LPA enables researchers to categorize participants into several groups according to their diverse psychological or behavioral characteristics, thereby providing a more nuanced description of the research sample (Collins & Lanza, 2010). After dividing participants into several groups, researchers can further determine how participants' group memberships predict or are predicted by external variables (Bakk & Kuha, 2021). As shown in Figure 1, the capital letter "C" within the circle represents the latent categorical variable, or group memberships, and the squares above the circle are the indicators. The arrows from the latent categorical variable to the indicators denote that participants' group memberships are measured by their responses to the indicators. The first model (Figure 1a) demonstrates that participants' group memberships predict their performance in regard to an outcome variable. This process is akin to conventional linear regression if the outcome variable is continuous (Bakk & Kuha, 2021). In the second model (Figure 1b), participants' group memberships are predicted by a predictor variable. Logistic regression is performed here, as the dependent variable (group memberships) is a categorical variable with at least two levels—that is, participants are categorized into two or more groups (Bakk & Kuha, 2021).

[INSERT FIGURE 1 HERE]

In recent years, LPA has been adopted by language education researchers to analyze L2 learners' motivation within the frameworks of language mindsets (Lou et al., 2021; Yao et al., 2021a, 2021b), self-efficacy (Wang et al., 2021), and self-determination theory (Liu & Oga-Baldwin, 2022; Oga-Baldwin & Fryer, 2020). Very limited research (e.g., Kangasvieri, 2019) has used this approach to examine students' ideal and ought-to selves within the L2MSS framework. Notably, only a few studies (Yao et al., 2021b; Liu & Oga-Baldwin, 2022; Lou et al., 2021) have employed LPA models with external variables to investigate how students' group memberships can predict and be predicted by other factors. For instance, Liu and Oga-Baldwin (2022) categorized 523 Chinese university students into three groups according to their diverse levels of motivation to study LOTEs. Further, significant differences in emotions and perceived target language competence (outcome variables) were identified across the three groups. In the present study, we believe that primary school NCS learners in Hong Kong can also be divided into different groups based on their various ideal selves and their motivation. Meanwhile, parental support, learning engagement, and reading achievement can be added to the LPA model to provide us with more information about these students' psychological and behavioral responses in Chinese learning.

Rationale and Aims of the Current Study

Thus far, we have drawn three major findings after reviewing the existing literature. First, research on the L2MSS could be extended by including primary school students that study LOTEs in different contexts. This will provide answers to the "question of how far

current theoretical perspectives are adequate to account for motivation to learn languages other than English" (Boo et al., 2015, p. 156). Second, parents should be involved as participants in analyzing their role in supporting their children' L2 study. Third, LPA could serve as an effective method to capture the complexity and nuance of L2 learners' motivational systems. Therefore, relying on LPA with external variables, we conducted this study in the context of primary school L2 Chinese education in Hong Kong. This study consisted of three inter-connected phases, aiming to answer three research questions:

1) What are primary school NCS students' group memberships pertaining to their ideal Chinese selves and their motivation?

2) Are students' engagement and Chinese reading test performance determined by their group memberships?

3) Can parental support predict students' group memberships?

According to the reviewed literature, we expected there to be positive associations between these students' ideal Chinese selves and their motivation. Moreover, we expected there to be significant differences in students' engagement and Chinese reading test performance as a function of their group memberships. Finally, parent support was hypothesized to predict students' group memberships.

Methodology

Context and Participants

According to the Census and Statistics Department of the Hong Kong Special Administrative Region, ethnic minority groups in Hong Kong increased from 5% to 8% of the whole population from 2006 to 2016 (Census and Statistics Department, 2016). Therefore, many local primary schools have gradually recruited an increasing number of NCS students.

The Hong Kong government is committed to encouraging and supporting the integration of these students into the community, including facilitating their early adaptation to the local education system and mastery of the Chinese language. This paper is part of a large project to examine factors that influence primary school NCS students' Chinese reading ability.

Participants in this study were 475 first-grade NCS students recruited from 12 primary schools in Hong Kong. They completed a Chinese reading test and a questionnaire measuring their ideal Chinese selves, motivation, and engagement. Another questionnaire was administered to these students' parents to investigate their support of their children's Chinese learning. Only 390 of them provided completed responses. Accordingly, data collected from students whose parents did not participate in this study were removed, and the final sample in this study was 390 students (M_{age} = 6.68, SD = 0.67) and their parents. Approximately 24.59% of the students came from Nepal, 14.89% from India, 13.31% from Indonesia, 11.35% from Pakistan, 9.69% from the Philippines, and the remaining 26.17% came from other countries and regions of Asia. We did not obtain these students' Chinese test scores prior to the study, as the local primary schools were encouraged by the Hong Kong government to recruit as many first-grade students as possible without assessing their Chinese language proficiency. Students were sampled in a real teaching environment. According to classroom teachers, these students were at the introductory level in terms of their Chinese learning.

Instrument

The instrument used in this study included the Chinese reading test and student and parent questionnaires. The Chinese reading test was created based on the List of Chinese Lexical Items and List of Chinese Grammatical Usage Items (Chan, 2007; Ke & Chan, 2017). Different kinds of items, such as "true or false" questions and matching questions, were used

to test students' comprehension and usage of Chinese vocabulary, phrases, and sentences. Originally, the test consisted of 30 items; however, in an early report to the government concerning the reliability and validity of the test, eight items were removed due to low values in item information function within the item response theory framework. One point was awarded for each correct answer, and students' total scores for the remaining 22 items (ranging from zero to 22) were used to denote their Chinese reading ability.

The student and parent questionnaires were developed by the authors of this paper and reviewed by Education Bureau officials as well as a focus group comprising representatives from the 12 primary schools. The student questionnaire (see Appendix A) measured students' ideal Chinese selves, motivation, and engagement on a four-point Likert scale ranging from one (never) to four (always). Considering the students' young ages, we only created three items for each construct. The ideal Chinese self items were adapted from Wong (2018), who investigated the ideal Chinese selves of fifth-grade primary school NCS students in Hong Kong. Example statement included: "Whenever I think of my future job, I imagine myself using Chinese". Motivation and engagement items were adapted from the 2011 Progress in International Reading Literacy Study (PIRLS) (http://www.sec.ntnu.edu.tw/timss2011/downloads/g404.pdf). Example statements included: "I would like to spend lots of time studying Chinese" (motivation) and "I know what my teacher asks me to do" (engagement). All nine items were in both English and Chinese.

The items in the parent questionnaire (see Appendix B) were adapted from the 2006 PIRLS (http://www.dorise.info/DER/download_PIRLS2006/02-home.pdf). We focused on three kinds of parental support: the number of Chinese books at home, parents' positive perceptions of Chinese reading, and parent–child Chinese reading activity. For the number of Chinese books (excluding magazines, textbooks, and reference books) at home, parents could

choose one of the five levels: one (zero to 10 books), two (11 to 25 books), three (26 to 50 books), four (51-100 books), and five (more than 100 books). Parents' positive perceptions of Chinese reading (five items) and parent–child Chinese reading activity (four items) were measured on a four-point Likert scale ranging from one (never) to four (always). Example statements included: "I like to spend my spare time reading Chinese" (positive perceptions of Chinese reading) and "Discuss with my child about the Chinese books that he/she has read" (reading activity).

Procedures

Data were collected with the assistance of classroom teachers. Students spent 30 minutes finishing the Chinese reading test and another 30 minutes responding to the questionnaire, with a 10-minute interval between the two activities. As the students were responding to the questionnaire, their classroom teachers gave specific explanations for the meaning of each item and provided support when necessary. Then, the parent questionnaire was sent to these students' parents by the participating schools and collected by the classroom teachers. Participation in this study was voluntary and participants were not compensated. Procedures for the study were approved by the Departmental Research Committee of the university.

Data Analyses

Preliminary analyses, including descriptive statistics, Cronbach's alpha, and bivariate correlations among primary variables were conducted using SPSS 22.0. Mplus 8.3 (Muthén & Muthén, 2017) was used to perform confirmatory factor analysis (CFA). To examine the construct validity of the instrument measuring students' ideal Chinese selves, motivation, and

engagement, we examined several fit indices, including the chi-square statistic (χ^2), comparative fit index (CFI; good > 0.95), root-mean-square error of approximation (RMSEA; good < 0.06), and standardized root-mean-square residual (SRMR; good < 0.05) (Meyers et al., 2016).

With Mplus 8.3, we then conducted LPA using the three ideal Chinese self and three motivation items as indicators. We aimed to classify students into different groups according to their diverse patterns of ideal Chinese selves and motivation. The optimal number of groups was identified based on a series of fit indices, including the log-likelihood (LL), the Akaike information criterion (AIC), the Bayesian information criterion (BIC), the sample size adjusted BIC (ABIC), the Lo-Mendell-Rubin likelihood ratio test (LMRT), the bootstrap likelihood ratio test (BLRT), and entropy. Lower absolute values for the LL, AIC, BIC, and ABIC indicate better model data fit. Significant *p* values for LMRT and BLRT (< 0.05) indicate that the existing model (e.g., the three-group model) fits the data better than the old model (e.g., the two-group model) (Yao et al., 2021a). An entropy value larger than 0.80 indicates a classification with more than 90% precision (Lubke & Muthén, 2007). We used Wald chi-square tests to examine group differences in the six indicators.

Finally, we added external variables to the LPA model. We first used the BCH command implemented in Mplus (Muthén & Muthén, 2017) to investigate whether students' group membership could determine their engagement and reading test performance. We then used the R3STEP command (Muthén & Muthén, 2017) to examine whether the three kinds of parental support (number of Chinese books at home, positive perceptions of Chinese reading, and parent–child Chinese reading activity) could predict students' group memberships. All Mplus codes written for the analyses are available from the authors upon request via email.

Results

Descriptive statistics, Cronbach's alpha, and bivariate correlations are displayed in Table 1. All of the variables measured using Likert scales had Cronbach's alpha coefficients larger or close to 0.70, demonstrating good internal reliability for linguistic research (Dörnyei, 2007). Further, the CFA results provided evidence of construct validity for primary school NCS students' ideal Chinese selves, motivation, and engagement. Fit indices indicated that this three-factor, first-order model (Figure 2) fit the data well: x^2 (24) = 45.797, p < 0.01, CFI/TLI = 0.976/0.963, RMSEA [90% CI] = 0.048 [0.026 – 0.069], and SRMR = 0.030. Factor loadings ranged from 0.669 to 0.812, with most hovering around 0.70 (all *p*s < 0.001). Ideal Chinese self was positively associated with motivation (r = 0.740, p < 0.001) and engagement (r = 0.697, p < 0.001); motivation was positively associated with engagement (r = 0.773, p < 0.001).

[INSERT TABLE 1 HERE]

[INSERT FIGURE 2 HERE]

Group Memberships Concerning the Ideal Chinese Self and Motivation

Given the close relationship between the ideal L2 self and motivation, we performed LPA to categorize the 390 primary school students into different groups using the three ideal Chinese self and three motivation items as indicators. The one-to-six-group solutions were examined and the model fit indices are presented in Table 2. As expected, the absolute values of the LL, AIC, BIC, and ABIC decreased as the number of groups increased, and the decrease became marginal when the number of groups reached four, suggesting that adding more groups to the model provides little information regarding group memberships. Further,

the four-group model had the highest classification precision (entropy = 0.885). Finally, the *p* values of the LMRT and BLRT were both significant for the four-group model, indicating that this solution was better than the three-group model. Therefore, the four-group solution was chosen for the subsequent analyses. The classification probabilities for the most likely group memberships for groups one, two, three, and four were 0.963, 0.910, 0.952, and 0.919, respectively.

[INSERT TABLE 2 HERE]

The estimated means of the six indicators for the four groups are displayed in Figure 3. For convenience, group 1 (N = 105, 26.9% of the total sample) was labeled "low-ideal learners", as their mean scores on the three ideal Chinese self indicators were the lowest. The second group (N = 126, 32.3%) was labeled "moderate-ideal learners", whose mean scores were slightly above 2.5 (the mid-point on a 1–4 scale). An equal number of students (N = 126, 32.3%) were identified as "high-ideal learners" (group 3), due to their high mean scores on the three indicators. A few students (group 4, N = 33, 8.4%) were labeled as "ambivalent learners" who scored relatively high on items 1 and 3 but extremely low on item 2. We identified a positive association between students' ideal Chinese selves and motivation for the first three groups. Group 1 students scored the lowest, whereas group 3 students scored the highest on the three motivation indicators, with group 2 students in between. Akin to the situation with the ideal Chinese self indicators, group 4 students had high mean scores on motivation items 1 and 3 but low score on item 2. Wald chi-square tests (Table 3) showed significant differences in all the six indicators among groups 1, 2, and 3 (all *p*s < 0.001). Group 4 did not differ from the other three groups in some indicators.

[INSERT FIGURE 3 HERE]

[INSERT TABLE 3 HERE]

Engagement and Chinese Reading Test Performance Determined by Group Memberships

We then examined whether students' engagement and Chinese reading test performance differed as a function of their group memberships. In terms of students' engagement in Chinese learning, Wald chi-square tests identified significant mean differences among the four groups: $\chi^2(3) = 167.810$, $p < 0.001$. Further, significant differences were evident in each pair-comparison (all ps < 0.05). Specifically, group 3 (high-ideal learners; $M = 3.578$, SE = 0.054) had the highest level of engagement, followed by group 4 (ambivalent learners; $M = 3.236$, SE = 0.125), group 2 (moderate-ideal learners; $M = 2.894$, SE = 0.054), and group 1 (low-ideal learners; $M = 2.396$, SE = 0.080). In terms of the students' Chinese reading test performance, the mean scores of groups 1, 2, 3, and 4 were 12.142 (SE = 0.570), 13.519 (SE = 0.527), 14.921 (SE = 0.525), and 13.022 (SE = 0.837), respectively. While Wald chi-square tests reported significant differences among the four groups: $\chi^2(3) = 13.496$, $p < 0.01$, we only observed significant differences between group 1 and group 3, $\chi^2(1) = 12.941$, $p < 0.001$.

Group Membership Predicted by Parental Support

Finally, we included the three kinds of parental support (the number of Chinese books at home, positive perceptions of Chinese reading, and parent–child Chinese reading activity) as predictors in the LPA model, to perform multinominal regression analyses. Group 1 (low-ideal learners) was treated as the reference group.

The results indicated that, generally, with more parental support, students were less likely to become low-ideal learners and more likely to become the other three kinds of learners (Table 4). The number of Chinese books at home was only associated with high-ideal learners (group 3), and the odds ratio was 1.481. In other words, for each single-point increase in this predictor, students were nearly 1.481 times more likely to be classified into the high-ideal group than into the low-ideal group. While the remaining two predictors were associated with all three remaining groups, parent–child Chinese reading activity had larger logistic regression coefficients and odds ratios, indicating that it was a more effective predictor of students' group memberships than parents' positive perceptions of Chinese reading. Note that the odds ratios for these two predictors were the largest for group 3 (2.268 and 2.843, respectively), meaning that students had the highest probability of being classified into this group. For each single-point increase in the parents' positive perceptions of Chinese reading or parent–child Chinese reading activity variables, students were 2.268 or 2.843 times more likely to be high-ideal than low-ideal learners.

[INSERT TABLE 4 HERE]

Discussion

The data analyses provided answers for the three research questions and demonstrated the nuances of students' motivational systems. In particular, we identified a small group of ambivalent learners that could otherwise have been neglected by conventional analytical approaches. The results are discussed here in relation to the existing literature.

The Positive Association between the Ideal Chinese Self and Motivation

In line with the argument that L2 learners' motivational beliefs are a complex system (Boo et al., 2015; Ushioda, 2009), we categorized the young NCS students in this study into four groups according to their diverse patterns of ideal Chinese selves and motivation. Dörnyei (2009) cautioned that the L2MSS framework "may not be appropriate for pre-secondary students" (p. 38), as L2 learners do not develop stable ideal self beliefs until adolescence (Zentner & Renaud, 2007). However, aside from the fourth group (ambivalent learners), in this study, we identified a positive association between our participants' ideal Chinese selves and their motivation levels. Most of the young learners in this study had clear, though differing, views of their possible future selves as successful Chinese speakers, which led to their diverse levels of motivation to study Chinese. It seems that, akin to secondary school or university students, primary school L2 learners' motivation to study the target language can also be guided by their ideal L2 selves. Nevertheless, more research is needed to include young L2 learners studying English or LOTEs around the globe to examine whether this observation can be replicated in different contexts.

Our attention was drawn to the ambivalent learners (group 4). As shown in Table 3 and Figure 3, they had almost identical ratings on ideal self items 1 and 3 with moderate-ideal learners (group 2), and comparable ratings on motivation items 1 and 3 with high-ideal learners (group 3). This instructed us to review the two items on which they had unusually low scores. The second item in the ideal self scale, "I hope I can talk with local people[1] about learning Chinese", concerns students' visions of communicating with native Chinese speakers about Chinese learning. Certain ambivalent students scored low on this item

[1] We are grateful for one reviewer's reminder that the term "local people", used in the student questionnaire may bring undesirable feelings to certain students that they are excluded from the Hong Kong community. We have replaced "local people" by ""native Chinese speakers" in our manuscript. Future research should use more neutral, inclusive terms when developing scales.

probably because they had unfavorable experiences of communicating with native Chinese speakers. Shum and colleagues (2011) found that secondary school NCS students in Hong Kong had unfavorable experiences with inter-ethnic communication and tended to avoid communicating in Chinese with their peers due to their "deficiency in spoken Chinese" (p. 291). Consequently, while the ambivalent students may be motivated to study Chinese, as required by schools, their motivation declined sharply when studying Chinese was no longer part of the curriculum, as evidenced by their low scores on motivation item 2, "I want to study Chinese even if it was not a school subject". Qualitative research, such as semi-structured interviews, is warranted to enable us to gain a deeper understanding of certain ambivalent students' opinions concerning their ideal Chinese selves and motivation.

Students' Varied Engagement and Chinese Reading Test Performance as a Function of Group Memberships

Generally, students' diverse levels of engagement in Chinese learning were paired with their individual ideal Chinese selves. The high-ideal learners (group 3) were the most engaged and the low-ideal learners (group 1) the least engaged, consistent with existing literature that students' ideal selves could determine their engagement in L2 learning activities (Dörnyei & Chan, 2013; Hessel, 2015**;** Lee & Lu, 2021; Moskovsky et al., 2016). The ambivalent learners (group 4) had significantly lower scores on ideal self item 2 but higher scores on engagement than the moderate-ideal learners (group 2). This finding could be attributed to ambivalent learners' relatively high levels of motivation to study Chinese, as L2 learners' motivation to study the target language has been repeatedly reported to predict their engagement in learning activities (Noels et al., 2019; Tsao et al., 2021). While certain ambivalent students were not likely to envision communicating with native Chinese speakers,

they were still motivated (as evidenced by their high scores on motivation items 1 and 3) to engage in various Chinese learning activities at school.

With regard to students' Chinese reading test scores, significant differences only existed between the low-ideal self (group 1) and the high-ideal self learners (group 3). It appeared that students' ideal selves could not contribute to their significantly better academic performances until they reached extremely high level (e.g., around 3.5 on a 1–4 scale in this study). This finding echoes the observation that L2 students' ideal selves are only weakly associated with their academic performance (Lamb, 2012; Wong, 2018). In fact, Dörnyei (2005) found that L2 learners' personal traits only explained no more than "15% of the variance in academic performance" in most of the empirical studies due to different factors, such as contextual and methodological issues (p. 21). Additionally, self-reported data may not truly reflect students' real behaviors (Moskovsky et al., 2016), and "the capacity of L2MSS's components to predict learners' intentions cannot automatically be extended to actual behavior" (p. 645). Students' high ratings on the items measuring their ideal selves, motivation, and engagement may not fully translate into positive actions in language studies. Therefore, future research may use other approaches, such as classroom observations, to obtain a more accurate portrait of students' motivated behaviors.

The Role of Parental Support in Determining Students' Group Memberships

With the data collected directly from parents, our findings show that parental support contributed to higher probabilities of students becoming highly motivated learners who envision themselves as successful L2 Chinese speakers (group 3), which is in line with extant literature that parents play a significant role in shaping Asian students' ideal L2 selves and their learning motivation (Gu & Cheung, 2016; Shum et al., 2011; Sugita-McEown et al.,

2017). Further, as group 3 students scored the highest on the engagement variable and the Chinese reading test, our findings also corroborate the view that parental support contributes to students' intended L2 learning efforts and reading achievements (Gu & Cheung, 2016; Mori & Calder, 2017). All three kinds of parental support were found to determine students' group memberships, though the extent of their effects varied.

Among the three kinds of parental support, the number of Chinese books at home was the least effective in terms of promoting young NCS students' motivation, engagement, and reading test performance. Parents who are willing to buy Chinese books may not actually support their children's Chinese reading with these books. Consequently, the Chinese books at home may not fully come into play in children's Chinese learning. However, there are two notable issues with this result. First, it is also possible that certain motivated and engaged children may want to have more books, but there may be only a few Chinese books at home due to various reasons. Second, the skewness of this variable is 1.77 (Table 1), indicating that the scores were skewed toward the lower end of the distribution curve. This may to some extent impact the results of the logistic regression. More research is needed to further explore the relationship between the number of books at home and young NCS learners' motivation, engagement, and academic achievement. Parents' positive perceptions of Chinese reading was a better predictor of students' Chinese learning in this study. Mori and Calder (2017) found that parents' perceptions toward the target language are related to home language usage and their children's L2 reading competence. Therefore, parents who hold positive perceptions of Chinese reading may engage in home reading activities, or at least indirectly influence their children's attitudes toward Chinese learning. Parent–child Chinese reading activity was the most effective predictor, as it was found to be conducive to children's L2 learning by engaging parents and children in direct communication and increasing the

frequency of target language reading at home (Mori & Calder, 2017; Pinter, 2016). In general, simply buying Chinese books may not be enough; to better support their children's Chinese learning, parents should first hold positive perceptions of Chinese reading and then spend time communicating and reading with their children.

Practical Implications

Despite the important role parents play in their children's Chinese learning, NCS students generally felt that they received insufficient parental support in the learning process (Shum et al., 2011), and the primary reason was the limited Chinese literacy of their parents (Gu & Patkin, 2013; Shum et al., 2011). Conceivably, parents' high proficiency in the target language is likely to be conducive to home reading activities that can ultimately improve students' L2 competence, such as reading ability. However, Pollard-Durodola et al. (2017) argued that reading in their native language can contribute to young learners' L2 content vocabulary knowledge development as well. The authors proposed a shared book reading activity where parents spend approximately 15 minutes each day reading a book and communicating with their preschool children in L1 Spanish. It turns out that reading in their native language does not hinder children's L2 English development and that they can develop the two languages "simultaneously or sequentially" (p. 338). This encouraging finding suggests that NCS parents in Hong Kong may support their children's Chinese reading development by reading with their children in their native languages. Notably, the two languages in Durodola et al. (2017) were Spanish and English, which share commonalities, both belonging to the Indo-European family of languages. Future research is warranted to examine whether reading in NCS students' native languages also contribute to young students' L2 Chinese learning.

Moreover, given that young children can also be motivated by their ideal Chinese selves to engage in learning activities, school teachers can use different approaches to inspire their students to imagine the desired future images of successful Chinese users. For example, teachers can play cartoons that depict characters communicating fluently with each other in Chinese or using the language in their daily lives. In this process, teachers can guide students in imagining they are the figures in the cartoons. This may help young children develop and strengthen their ideal Chinese selves, as evidenced by a similar empirical study on L2 English learners in the UK (Adolphs et al., 2018).

Conclusion

This study involved primary school NCS students and their parents, and aimed to investigate the role of parental support in students' Chinese learning within the L2MSS framework. The findings contribute to the literature in three ways. First, we observed positive associations between students' ideal selves and their motivation, engagement, and Chinese reading test performance, and affirmed that the L2MSS framework can be applied in analyses of young LOTE learners. Second, unlike previous studies that have relied on students' perceptions of parental support, we invited parents as participants to provide descriptions of their role in shaping students' L2 learning. Third, LPA was found to be effective in analyzing L2 learners' complex motivational systems.

In addition to the future research directions mentioned in the Discussion section, there are at least four limitations of this study that merit further exploration. First, this cross-sectional study may not fully capture the predictive power of parental support in regard to young NCS students' language learning. Future research may adopt a longitudinal design and examine, for instance, the impacts of parental support in grade one on students' motivation,

engagement, and academic achievement in grade two or grade three. This would provide additional evidence and rationale for engaging parents in their children's L2 Chinese learning at an early stage.

Second, we examined students' ideal Chinese selves and engagement as holistic constructs. It would be rewarding to examine how parental support may contribute to different properties of young L2 learners' ideal Chinese selves, such as desirability and accessibility (Hessel, 2015), which may impact their four dimensions of engagement: cognitive, behavioral, emotional, and agentic engagement (Reeve & Lee, 2014). This would enable us to further unpack the motivational systems of young L2 learners and provide a more explicit view of their behavioral responses in language learning.

Third, the ought-to L2 self and other aspects of L2 learning experience were not included in this study. Future research may compare the impacts of parental support on young L2 learners' ideal and ought-to selves, as existing literature has reported mixed findings on this issue (Csizér & Kormos, 2009; Sugita-McEown et al., 2017). Moreover, as teachers and peers are also important others that can shape the L2 learning experience, future research may examine what roles teachers and peers play in young L2 learners' language learning.

Finally, we did not consider the influence of some demographic variables in this study. Existing research has indicated that gender (You et al., 2016) or socioeconomic status (Yao et al., 2021a) may play a role in shaping L2 learners' motivational dispositions. Future research may involve demographic variables in analyzing young LOTE learners' psychological and behavioral responses. This would complement the existing literature by providing more information about young L2 learners' language learning from a sociocultural perspective.

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Appendix A Student Questionnaire

Motivation

Do you want to learn Chinese (你想學習中文嗎)?

1. I would like to spend lots of time studying Chinese (我樂意用很多時間學中文)
2. I want to study Chinese even if it was not a school subject (即使不是學校科目，我也想學習中文).
3. I am working hard at learning Chinese (我正在努力地學習中文).

Ideal Chinese self

What do you expect on yourself in learning Chinese (你對自己學習中文有甚麼期望)?

1. I want to use Chinese like a native speaker (我希望自己如母語者一樣運用中文).
2. I hope I can talk with local people about learning Chinese (我希望自己能與本地人講學習中文的情況).
3. Whenever I think of my future job, I imagine myself using Chinese (當想到未來的工作，我就想像自己在使用中文).

Engagement

How often do you have the following feelings when you have the Chinese class at school (你在學校上中文課時，多經常有以下感受)?

1. I know what my teacher asks me to do (我明白老師要求我做的事情).
2. What my teacher says is easy to understand (老師講的容易瞭解).
3. I am interested in what my Chinese teacher says (我對老師講的內容有興趣).

Appendix B Parent Questionnaire

Number of Chinese books at home

About how many Chinese books are there in your home (excluding magazines, text books or reference books of your child)?

你的家中約有幾多本中文書籍 (不包括兒童雜誌、課本及參考書)?

1. 0-10
2. 11-25
3. 26-50
4. 51-100
5. More than 100

Positive perceptions of Chinese reading

How much do you agree with the following statements about Chinese reading?

你有多同意下列與中文閱讀有關的陳述?

1. I like talking about what I read from Chinese books with other people (我喜歡和別人談論中文書籍).

2. I like spending my spare time reading Chinese (我喜歡利用空餘時間閱讀中文).

3. Chinese reading is an important activity in my home (中文閱讀在我家是一項重要活動).

4. I would like to have more time for reading Chinese (我想有更多的時間去閱讀中文).

5. I enjoy reading Chinese (我享受閱讀中文).

Parent-child Chinese reading activity

How often do you do the following things with your child?

你多經常和子女一同做以下的活動?

1. Listen to my child reading Chinese books (子女讀中文書給我聽).

2. Discuss with my child about the Chinese book that he/she have read (和子女傾談他/她閱讀有關中文的書刊).

3. Discuss with my child about his/her Chinese learning at school (和子女討論在學校和中文有關的學習).

4. Help my child complete homework by reading Chinese (協助子女透過閱讀中文完成家課).