

# The different effects of the ideal L2 self and intrinsic motivation on reading performance via engagement among young Chinese second-language learners

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**Abstract:** Although motivational variables have been extensively examined in the context of English as a second/foreign language (ESL/EFL), they have received little attention when learning Chinese as a second language (CSL), especially among elementary school students in lower grades. Considering the significant impact of psychological variables on language learning and the dilemma of Chinese reading for non-Chinese speaking (NCS) students from Hong Kong, this study examined the structural relationship between the ideal L2 self and intrinsic motivation, as well as their impacts on the learning engagement and reading performance of 475 Hong Kong first-grade NCS students. Two findings were noteworthy: (1) under the simultaneous consideration of the above-mentioned variables, intrinsic motivation affects learning engagement and Chinese reading performance more than the ideal self; (2) the indirect effects of intrinsic motivation on reading performance through learning engagement are more significant than its direct effect on reading performance. The implications of the findings are discussed.

**Keywords:** ideal L2 self; intrinsic motivation; learning engagement; non-Chinese speaking children; reading performance

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# 1 Introduction

When the policy of bi-literacy (referring to literacy in the two written languages of Chinese and English) and trilingualism (referring to fluency in the three spoken languages of Cantonese, English, and Mandarin) was introduced in 1997, non-Chinese speaking (NCS) students in Hong Kong faced a huge challenge in learning Chinese as a second language (L2 Chinese). Previous studies found that NCS students can only understand roughly 70% of the teaching syllabus (Leung 2019), and typically, they perform poorly in reading comprehension compared to native speakers (Wong 2018). Although scholars stated that reading proficiency is the cornerstone of academic achievement (Wilson and Trainin 2007) and the first and second grades are crucial periods for the development of reading skills (e.g., Juel 1988; Liu et al. 2016; Sparks et al. 2014), few studies have investigated reading performance and its psychological factors influencing school-age children who learn Chinese as a second language (CSL).

Learning motivation has been a significant focus of the L2 studies experts (Al-Hoorie 2017; Wong 2018) as it compensates for L2 aptitude deficits, increases strategy use, and hence positively affects learning (Winke 2013). The ideal L2 self, a core concept of the L2 Motivational Self System (L2MSS) (Dörnyei 2009, 2010), embodies “the attributes that someone would ideally like to possess” (Dörnyei 2010, 78). This concept has been widely discussed in the context of English as a foreign language (EFL) (e.g., Ghasemi et al. 2020; Roshandel et al. 2018; Teimouri 2017) and it theoretically hypothesizes that L2 learners’ motivation will increase when they perceive the discrepancy between their ideal L2 self and their actual L2 self (Markus and Nurius 1986). Another important motivation dimension is intrinsic motivation, which is defined as doing something for interest, for involvement, or out of curiosity (Ryan and Deci 2000). Both the ideal self and intrinsic motivation explore the inner psychological states that students themselves inspire. The difference is that intrinsic motivation emphasizes the enjoyment of the present, whereas the ideal self underlines the desire for the future. Existing literature that focuses on the ideal self and intrinsic motivation has been limited to a more general EFL achievement (e.g., Tsao et al. 2021; Yashima et al. 2017); little research has been conducted regarding CSL reading. Therefore, conducting studies within a context that features CSL is beneficial to the existing theoretical framework, providing a perspective of language acquisition in different learning environments.

In addition, scholars such as Dörnyei (2005), Norman and Aron (2003), and Papi (2010) have argued that motivation does not always result in quality performance if appropriate learning pathways do not mediate it. This view is supported by several empirical studies, which revealed that motivation-related factors impact learning

performance via behavioral mediators such as intended effort (Wong 2020) and self-regulation (Rotgans and Schmidt 2012). However, learning engagement (as combined with motivation-related factors) has rarely been discussed in an L2 context as a variable that may explain whether, how, and why language learners devote time and attention to L2 learning and persist and self-regulate their behavior toward objectives (Dao 2021; Henry and Thorsen 2020; Lambert et al. 2017).

Given the importance of reading and motivation for academic achievement, the fact that Hong Kong NCS students have significant difficulty with Chinese reading, and the paucity of relevant research on children, the purpose of this study is to determine the relationship between the ideal reading self, intrinsic motivation, learning engagement, and Chinese reading performance among first-grade Hong Kong NCS elementary school students. This will allow teachers to assist students with Chinese reading in more targeted ways.

## 2 Literature review

### 2.1 Reading ability of younger children

Reading proficiency is essential because modern education is highly reliant on a student's ability to read and comprehend textual instructions and passages on various topics (Kanonire et al. 2022; Zhu et al. 2020). Previous studies have demonstrated that children's reading ability develops irregularly (deWeerth et al. 1999) and that the early grades are crucial for the development of reading skills (e.g., Kieffer 2012; Liu et al. 2016; Palardy 2010). Using latent transition analyses with growth mixture modeling, Liu et al. (2016) investigated students from kindergarten to junior secondary school, revealing that their reading ability improved more rapidly in Grade 1 than in later grades. In addition, evidence indicates that school-entry students' reading ability is strongly associated with their later reading performance in Grade 3 (Kanonire et al. 2022), Grade 4 (Juel 1988), and Grade 11 (Cunningham and Stanovich 1997; Sparks et al. 2014). Evidence also shows that this even impacts their later mathematic ability (Duncan et al. 2007). In other words, the ability to become literate is a primary priority for school-aged children since failure to develop practical reading abilities at this stage has long-lasting consequences for future academic success (Stanovich 1986).

Investigations showed that Chinese has become one of the major challenges for these students in Hong Kong (Lone and Chow 2021) and has revealed a massive gap between them and their Chinese peers, especially in reading Chinese (Li 2017; Wong 2018). Scholars attributed this to the significant disparities between spoken Cantonese and standard written forms of Chinese (Bhowmik and Kennedy 2016; Li

et al. 2020; Ullah 2012). As the primary medium of communication used in the classroom, Cantonese is different from the standard form of Mandarin in terms of the way words are used and sometimes with regards to grammar. This means that in addition to mastering their native language, English, and spoken Cantonese, NCS students also must learn a complex writing system that is somewhat detached from its daily use, which makes recognizing Chinese characters and reading Chinese significantly more challenging. Therefore, concerning the reading performance of CSL students aged 5-7, the majority of research has focused on the metalinguistic skills of the Chinese writing system, such as orthographic features (e.g., Chan et al. 2021; Loh et al. 2018), morphological awareness skills (e.g., Ke and Xiao 2015; McBride-Chang et al. 2003), and phonological awareness (e.g., Huang and Hanley 1997; Zhou et al. 2018), while the psychological factors—such as motivation (Al-Hoorie 2017), which also significantly contributes to L2 Chinese reading performance—have not received enough attention (Wong 2018).

To be successful in the Hong Kong education system and to find employment in Hong Kong, NCS students are required to master Chinese. However, due to the intricacy of Chinese characters and limited daily use of Mandarin, NCS students may be unmotivated to read in Chinese (Loh et al. 2018). The interaction between the pressure from the external social environment and the actual difficulties of learning Chinese characters may make NCS students' motivation to read Chinese more complex than that of other L2 learners. Given the growing visibility of the school-aged NCS population and the important role of reading literacy in the early elementary period, the Chinese reading performance of school-aged NCS children—and the different motivation dimensions in the CSL reading context—deserve additional empirical examinations to improve pedagogical support in a more targeted manner.

## 2.2 Two motivations for L2 achievement

### 2.2.1 Ideal L2 self

The ideal L2 self, as one of the core concepts in the L2 Motivational Self System (L2MSS), was introduced by Dörnyei (2009, 2010). This paradigm is deeply entrenched in L2 motivation but relies on psychological theories such as possible selves (Markus and Nurius 1986) and self-discrepancies (Higgins 1987). Specifically, the ideal L2 self refers to what one desires to become when learning a second or foreign language; for example, a student's wish to read and understand Chinese novels.

Numerous studies on the ideal L2 self have been conducted in the general EFL context. These studies shed light on the potential relationship between the ideal L2 self and self-efficacy (Roshandel et al. 2018), emotional output (Teimouri 2017), and

motivation to communicate (Bursali and Oz 2017), as well as how the ideal self affects language proficiency (Ghasemi et al. 2020). In one of the few studies with CSL or Chinese as a foreign language (CFL), Wong,s (2018) longitudinal study investigated the structural relationships between the ideal L2 self and Chinese reading literacy among NCS students in Hong Kong in Grades 5–6, revealing that students, ideal L2 selves were significantly correlated with their reading performance ( $r = 0.23$ ,  $p < 0.05$  in Grade 5;  $r = 0.39$ ,  $p < 0.01$  in Grade 6). Wong,s (2020) survey of the Chinese listening and reading performance of NCS Grade 5–6 students also supported this view ( $r = 0.32$ ,  $p < 0.01$  in Grade 5;  $r = 0.39$ ,  $p < 0.01$  in Grade 6). Furthermore, Li and Zhang (2021)found that the ideal L2 self can predict the level of Chinese of Tibetan high school students on the Aba plateau, albeit with only 13% of the variation explained. In contrast with the above CSL studies, Tan et al.,s (2017) study shows no effect ofthe ideal L2 self on the level of Chinese of degree students in Malaysia.

These studies collectively demonstrate that students, Chinese performance may be empirically influenced by their ideal L2 selves, but there are also considerable differences across groups of diverse ages and socioeconomic backgrounds. Moreover, although the importance of school-entry students, reading ability has been clarified, the existing literature concerning the ideal L2 self and CSL students, reading performance mainly focuses on students in Grade 4 and above. Considering the scant CSL/CFL-related research (Li and Zhang 2021) and that the ideal self is a dynamic concept (Boyatzis and Dhar 2022) that may change throughout students, language learning process, this additional survey on the relationship between the ideal L2 self and Chinese reading performance among younger children may further reveal the extent of the applicability and characteristics of the L2MSS theory to different age groups and different L2 learning groups.

### 2.2.2 Intrinsic motivation

In self-determination theory, intrinsic motivation refers to doing an activity for the intrinsic satisfaction of doing it (Deci and Ryan 1985). Although intrinsic motivation is not a unique form of people,s inner drive, it is ubiquitous and significant. This is because the tendencies to take an interest in novelty and to apply our talents

-creatively are significant aspects of human nature that influence performance, persistence, and happiness throughout life,s stages (Ryan and La Guardia 2000). Specifically, components of intrinsic reading motivation include, but are not limited to, pleasant experiences of reading as an activity, the perception of books as a source of enjoyment, an interest in the content of the material read, and the perceived personal significance of reading (Becker et al. 2010).

Previous empirical studies have discussed the relationship between intrinsic motivation and reading performance. For example, in Schaffner and Schiefele,s (2016) longitudinal study of German students in Grades 2 and 3, bidirectional relationships were observed between intrinsic reading motivation and German reading proficiency based on word- and sentence-level reading ability. Similar findings can also be seen in Miyamoto et al.,s (2018) investigation of secondary students and Kanonire et al.,s (2022) research on first and third graders who studied Russian as a second language. Although extant literature, to some extent, reveals the positive relationship between intrinsic motivation and reading performance, research on the relationship between CSL reading performance and NCS students, motivation remains limited.

Considering the above, it is clear that both intrinsic motivation and the ideal self play a significant role in foreign language learning, but they have rarely been explored together. According to the L2 Motivational Self System (Dörnyei 2009), the gap between one,s ideal self and actual self regarding an L2 has been conceptualized as the motivational source for achieving a future self-image. However, this paradigm has been challenged for failing to capture the complexities of language learning motivation and requires supplementation with different educational views (e.g., Lai and Tai 2021; Oga-Baldwin et al. 2019). According to mainstream psychology, images of future outcomes do not inevitably lead to motivation as future self-direction is grounded in and impacted by the present (Oettingen and Reininger 2016). Intrinsic motivation, like the ideal L2 self, is another crucial motivation dimension within individuals(RyanandDeci2000), but it stresses the present enjoyment ofL2learning. As several empirical studies have proven the positive correlations between the ideal self and intrinsic motivation (e.g., Lai 2013; Maekawa and Yashima 2012), we believe that intrinsic motivation may compensate for the “deficiency” ofthe ideal L2 self—which solely focuses on the future—when addressing students, L2 learning performance from a psychological perspective.

## 2.3 Learning engagement as the mediator

Engagement, which generally refers to action (Hiver et al. 2020), is a prerequisite for meaningful learning or educational success (e.g., Oga-Baldwin et al. 2019; Philp and Duchesne 2016). The nature of engagement as a “meta-construct” that incorporates visible behaviors, internal cognition, emotions, and socio-cultural interactions makes it attractive to many scholars (Hiver et al. 2020). More importantly, engagement and motivation are inextricably interrelated (Martin et al. 2017). Motivation is

an internal psychological factor with an energizing impetus, whereas engagement consists of publicly observable behaviors, representing learners' involvement in an activity. Considering that without proper learning channels, motivation does not always lead to a better performance (Dörnyei 2005; Norman and Aron 2003; Papi 2010), Martin (2009) states that motivation is the energy that learners use to realize their potential and that "learning engagement" refers to their subsequent behavior when they achieve their potential. In the reading engagement model (Guthrie and Klauda 2016), reading motivation generates reading engagement, which in turn improves reading performance. However, this theorized mediation effect has scarcely been empirically examined and the results have been inconsistent.

In terms of the mediating function that learning engagement serves in ideal L2 self research, Wong (2018) found that the ideal L2 self can only positively affect Grade 6 NCS students' Chinese reading comprehension via their motivated learning behavior. In contrast to Wong's finding, Kim and Kim (2014) observed that the ideal L2 self of Korean students from Grades 3–12 contributed to their English proficiency both directly and indirectly through their motivated behavior, despite the fact that its direct influence was negligible. In contrast to the results of the above two studies, Moskovsky et al. (2016) conducted a series of regression analyses to predict learners' overall L2 competency and revealed that the relationship between the ideal L2 self, motivated effort, and L2 achievement was not only weak, but actually negative. In studies concerned with intrinsic motivation and L2 reading performance, inconsistent results regarding learning engagement as a mediator are also witnessed. For example, Schaffner et al. (2013) studied the role of reading activity as a mediator of intrinsic motivation on the reading comprehension performance of 159 German fifth graders, showing that reading activity fully mediated the relationship between intrinsic motivation and higher-order comprehension after controlling for students' lower-order comprehension, gender, and social desirability. However, the study by Becker et al. (2010), who longitudinally evaluated the relationship between intrinsic motivation, reading activity, and reading achievement in a sample of German third graders, found no compelling evidence that reading activity moderated their study after controlling for their previous reading proficiency.

Given all that has been mentioned so far, the role of motivated behavior/reading activity as a mediator in the relationship between L2 selves, intrinsic motivation, and reading achievement has not been conclusively substantiated. Nevertheless, these studies indicate that the relationship between psychological and behavioral variables and reading performance is complicated and influenced by many factors. Based on the aforementioned literature, it is reasonable to speculate that different educational stages (e.g., elementary school vs. secondary school), types of L2 (e.g., an inflectional language such as English or German vs. an isolating language such as

Chinese), and educational/cultural backgrounds (e.g., American vs. European vs. Central Asian vs. East Asian) may play a role in the relationship between these variables. Considering that the group of early elementary school-aged children in HongKong was not included in the previous study group—and to better elucidate the relationship between these variables—additional research on the group of NCS first graders in Hong Kong is required, thus providing more empirical evidence from a new perspective.

## 2.4 Present study

To assist these youngsters in adapting to the education system in Hong Kong and assimilating into the local community without difficulty, the Government of Hong Kong has implemented a large-scale project to investigate the progress of NCS students in learning the Chinese language and its influential factors. This paper is part of that project. The present study aims to enhance our understanding of the relationship between two motivations—the ideal L2 self and intrinsic motivation—as well as their associations with learning engagement and Chinese L2 reading performance in early elementary NCS students in Hong Kong, an area where previous research has generated limited and inconsistent results. To achieve our objective, we collected data on students, reading performance and evaluated the effects of students, L2 self, intrinsic motivation, and learning engagement on their Chinese reading performance. These data are used to address the two research questions listed below:

- (1) Under the simultaneous consideration of the ideal self, intrinsic motivation, and learning engagement, do both the ideal L2 self and intrinsic motivation have significant effects on the Chinese reading performance of first-grade NCS students in elementary schools?
- (2) If yes, are the effects greater with the mediation of learning engagement?

On the basis of prior theoretical hypotheses and empirical research, we initially hypothesized that the ideal L2 self and intrinsic motivation may positively affect Chinese reading performance (Dörnyei2009; Kanonire etal. 2022; Liand Zhang2021). When learning engagement is added asa mediator, these two psychological variables will have a greater impact on Chinese reading performance (Guthrie and Klauda 2016). We, therefore, established an SEM model (Figure 1) in which the three latent variables are the ideal L2 self, intrinsic motivation, and learning engagement; the observed variable is the reading performance.



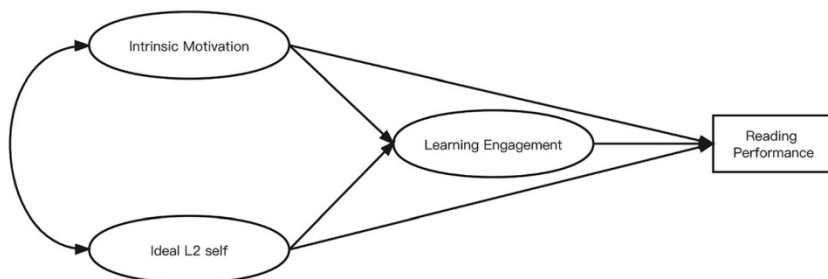


Figure 1: The postulated relationships between intrinsic motivation, the ideal L2 self, learning engagement, and reading performance.

## 3 Research method

### 3.1 Participants

This paper is part of a large-scale project to examine Chinese reading ability and its influential factors among NCS students in elementary school. Participants consisted of 475 first-grade NCS students ( $M_{\text{age}} = 6.52$ ,  $SD = 0.64$ ) recruited from 12 public elementary schools in Hong Kong. The native languages of these students are very diverse; English and other Asian languages (e.g., Urdu, Hindi, Tagalog, and Indonesian) predominate while few speak African or European languages. The medium of instruction for Chinese lessons in most schools is Cantonese. NCS students are usually separated from those Chinese-speaking students when having Chinese classes due to the different levels of Chinese proficiency. Before data collection, the Departmental Research Committee (on behalf of the Institutional Review Board) approved the study's procedures.

### 3.2 Instruments and data collection

The participants first completed a Chinese reading test and then a questionnaire measuring their ideal L2 self, intrinsic motivation, and learning engagement. The instrument contained a 30-min Chinese reading test and a student questionnaire. The Chinese reading test was designed based on the List of Chinese Lexical Items and the List of Chinese Grammatical Usage Items (Chan 2007; Ke and Chan 2017). To evaluate students' comprehension and application of Chinese vocabulary, phrases, and sentences, a variety of items, such as true-false and matching questions, were employed. The total scores from 22 items were used to determine students' Chinese reading ability.

On a 4-point Likert scale ranging from 1 (never) to 4 (always), the student questionnaire examined students' three aspects, i.e., the ideal L2 self, intrinsic motivation, and learning engagement in L2 Chinese reading. Due to the young age of the students, we only designed three items for each aspect. Items of the ideal L2

self (Cronbach’s alpha = 0.800) were adapted from Wong (2018). Example statements included: “I hope I can talk with local people about learning Chinese.” Items measuring intrinsic motivation (Cronbach’s alpha = 0.773) and learning engagement (Cronbach’s alpha = 0.692) were adapted from the 2011 Progress in International Reading Literacy Study (PIRLS). Example statements included: “I want to study Chinese even if it is not a school subject” (intrinsic motivation) and “I know what my teacher asks me to do” (learning engagement). Each of the items were written in both English and Chinese. The questionnaire was reviewed by Education Bureau officials as well as a focus group comprising representatives from the participating elementary schools. While the participants were responding to the questionnaire, classroom teachers provided specific explanations of each item’s meaning and offered assistance as needed.

3.3 Data analyses

SPSS 22.0 was used to conduct preliminary analyses including descriptive statistics, Cronbach’s alpha coefficients, and bivariate correlations among primary variables. Confirmatory factor analysis (CFA) was performed using Mplus 8.3 (Muthén and Muthén 2017). The chi-square statistic ( $\chi^2$ ), 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) were used to examine the construct validity of the instrument measuring students’ ideal L2 self, intrinsic motivation, and learning engagement (Meyers et al. 2016). All the Mplus codes written for the analyses are available from the authors through email.

4 Results

In Table 1, descriptive statistics, Cronbach’s alpha, and bivariate correlations are presented. Cronbach’s alpha values for all variables evaluated on Likert scales were more than or close to 0.70, indicating good internal reliability for linguistic research (Dörnyei 2007).

In addition, the CFA results presented evidence of construct validity for the ideal L2 selves, intrinsic motivation, and learning engagement of elementary school L2

Table 1: Descriptive statistics and bivariate correlation between primary variables.

	Descriptive statistics					Bivariate correlation			
	Mean	SD	$\alpha$	Skewness	Kurtosis	1	2	3	4
1. Motivation	2.81	0.81	0.773	-0.08	-0.85	–			

2. Ideal self	2.86	0.89	0.800	-0.33	-0.91	0.60 <sup>a</sup>	-	
3. Engagement	2.99	0.76	0.692	-0.35	-0.62	0.58 <sup>a</sup>	0.51 <sup>a</sup>	-
4. Reading task	18.83	6.64	-	0.11	-0.97	0.16 <sup>a</sup>	0.21 <sup>a</sup>	0.30 <sup>a</sup>

Note. <sup>a</sup>p < 0.01.

learners. Fit indices indicate that this model(Figure2)<sup>1</sup> fits the data well:  $\chi^2$  (24)=45.128,  $p < 0.01$ , CFI = 0.979, TLI = 0.969, RMSEA [90% CI] = 0.043 [0.023-0.062], and SRMR = 0.028. As intrinsic motivation and the ideal L2 self may be similar to some extent, another CFA was performed. When putting the items of intrinsic motivation and the ideal L2 self together, the model fit was:  $\chi^2$  (26) = 159.948,  $p < 0.01$ , CFI = 0.910, TLI = 0.875, RMSEA [90% CI] = 0.104 [0.089-0.120], and SRMR = 0.048.  $\Delta\chi^2$  (2) = 114.82 indicates that the model fit deteriorated significantly and that the items in intrinsic motivation and the ideal L2 self should be separated.

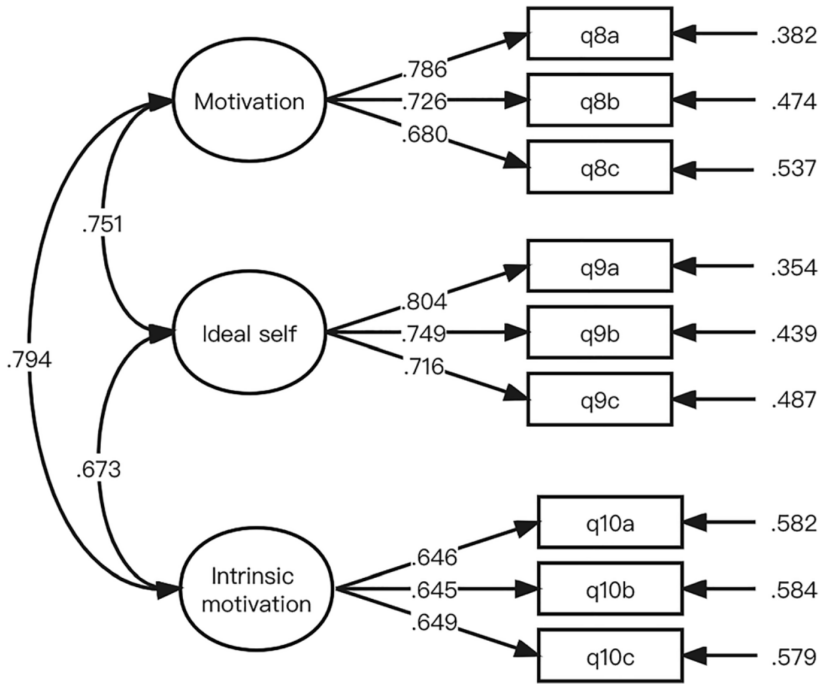


Figure 2: CFA model results.

1 q8a, q8b, q8c were the three items ofmotivation;q9a, q9b, q9c were the three items ofthe ideal self; and q10a, q10b, q10c were the three items of engagement.

Standardized path coefficients between the three factors and the nine items ranged from 0.645 to 0.804, with most hovering around 0.70 (all ps < 0.001). Learning engagement was positively associated with intrinsic motivation ( $r = 0.794$ ,  $p < 0.001$ )

and the ideal L2 self ( $r = 0.673$ ,  $p < 0.001$ ); the ideal L2 self was positively associated with intrinsic motivation ( $r = 0.751$ ,  $p < 0.001$ ).

The result of our hypothesized model is shown in Figure 3. Fit indices reached a good level:  $\chi^2(30) = 54.089$ ,  $p < 0.01$ , CFI = 0.979, TLI = 0.968, RMSEA [90% CI] = 0.041 [0.023-0.058], and SRMR = 0.028. In contrast to pre-study assumptions, neither intrinsic drive nor the ideal L2 self was a direct predictor of reading performance when learning engagement served as a mediator. Intriguingly, the path from the ideal L2 self to learning engagement was insignificant but was close to the significant level for linguistic research (standard path coefficient = 0.122, unstandardized path coefficient = 0.122, S. E. = 0.079,  $t = 1.557$ ,  $p = 0.119$ ). Among all variables, learning engagement was the only one directly affecting reading performance ( $\beta = 0.446$ ,  $p < 0.01$ ). What corresponded with our expectations was that intrinsic motivation not only had a direct effect on learning engagement ( $\beta = 0.665$ ,  $p < 0.01$ ), but also had an indirect influence on reading performance via learning engagement ( $\beta = 0.297$ , S. E. = 0.108,  $p < 0.01$ , 95% CI = [0.086, 0.508]). The  $R^2$  for reading performance and learning engagement was 0.134 and 0.643, respectively ( $p < 0.01$ ), indicating that the model could account for approximately 13.4 and 64.3% of the variance in these variables.

To determine if intrinsic motivation has a direct influence on reading performance, we developed another model with intrinsic motivation as the independent variable and reading performance as the dependent variable. This model also fit the data well:  $\chi^2(2) = 0.229$ ,  $p = 0.8920$ , CFI = 1.000, TLI = 1.000, RMSEA [90% CI] = 0.000 [0.000-0.041], and SRMR = 0.004. The results showed that the direct path was significant:  $\beta = 0.200$ , S. E. = 0.053,  $p < 0.001$ , 95% CI = [0.113, 0.286]. This indicates that the exogenous variable of intrinsic motivation was originally a significant predictor of the endogenous variable of reading performance; however, the mediator variable

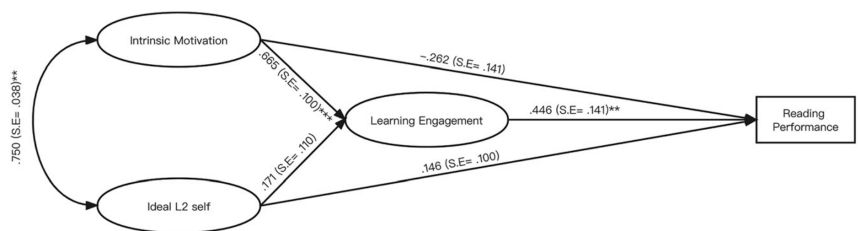


Figure 3: SEM results of the selected model with standardized estimates.

of learning engagement was so powerful that it completely mediated the direct influence once it was added to the model. In other words, learning engagement is referred to as a complete mediation (Meyers et al. 2016).

## 5 Discussion

This study examined the relationships among the ideal L2 self, intrinsic motivation, learning engagement, and reading performance in L2 Chinese among school-aged children. Our investigation revealed that: (1) Compared to the ideal self, the intrinsic motivation of first-grade NCS students in elementary schools had greater positive effects on their L2 reading performance; (2) Although intrinsic motivation has positive direct effects on reading performance, this path could be completely mediated by learning engagement.

### 5.1 School-aged children: a present-minded group

In alignment with those who studied the relationship between intrinsic motivation and English reading ability (e.g., Schaffner and Schiefele 2016), intrinsic motivation was also a significant predictor of success in L2 Chinese reading ability for younger ages. One possible explanation is that the characteristics of intrinsic motivation are somewhat consistent with an individual's nature. From a theoretical standpoint of intrinsic motivation, self-determination theory believes that humans are energetic, inquisitive, curious, and playful beings who are always ready to learn and explore, exhibiting an ever-present eagerness to learn and explore without needing external incentives (Ryan and Deci 2000). The proclivity to be interested in novelty, to actively integrate, and to creatively use our talents is a key feature of human nature that exists at all stages of life (Ryan and La Guardia 2000) but is most apparent in childhood. Several empirical studies examining motivational development have shown that students' motivation for learning tends to decline as they get older. For example, in their longitudinal study, Gottfried et al. (2001) found that intrinsic motivation from elementary to high school is a relatively stable construct that nevertheless decreases over time. The preceding observation demonstrates that children in Year 1 may focus more on their interests, enjoyment, and present feelings than the older ones. In other words, when learning Chinese is enjoyable for them, the enjoyment-seeking nature of children will energize them to learn Chinese, thus leading to better reading performance.

However, the ideal L2 self did not play such a positive role in school-entry (first-grade) students' CSL learning as L2MSS hypothesized, which is similar to the results

of several other studies (e.g., Moskovsky et al. 2016). This indicates that the results of previous research (e.g., Wong 2018) on the influence of the ideal L2 self on learning achievement at different ages may not be applicable to younger L2 Chinese learners. This can be explained by the assumption underlying Dörnyei's L2MSS that students with a high ideal self are associated with positive learning-related behaviors and, thus, have good academic achievement. Another interpretation follows that if students' ideal selves are not as high as the L2MSS assumes (e.g., have low ideal selves), determining the effect of the ideal self on learning-related behavior and learning achievement might be a matter of uncertainty (Kim and Kim 2014). In our early study with 390 first-grade elementary school NCS students (Zhu et al. 2022), we classified these students into different groups according to their ideal selves using latent profile analysis (LPA). The early study found that there were no necessary associations between the different groups, ideal selves and their reading performance, although students' ideal self was significantly related to their learning engagement. Nevertheless, in this study, under the simultaneous consideration of all variables, including intrinsic motivation in an SEM model, the ideal self does not affect learning engagement (but does approach a significant level). This suggests that further explorations of the relationship between the ideal self, learning engagement, and reading performance are required.

In the context of L2 Chinese teaching in Hong Kong, there are several possible explanations for the above-mentioned variable's relationship. First, schools in Hong Kong generally place NCS students in separate Chinese classes due to their lower proficiency level (Li 2017; Wong 2018), but many other subjects are still taught in Chinese. Second, the Chinese textbooks for NCS students in Hong Kong are typically the same as those for native-speaking students, which are difficult and not appropriate for NCS students. These two reasons leave NCS students with significant language challenges in their school life. Third, given the differences between standard written Chinese and spoken Cantonese (Bhowmik and Kennedy 2016; Li et al. 2020; Ullah 2012), Chinese reading has become very difficult for NCS students. Under the interactive influences of such learning environments, it might be difficult for NCS children around the age of six to form a strong and positive image for using Chinese fluently in the future.

Compared with the ideal L2 self, intrinsic motivation has a more significant impact on children at a young age. This is because intrinsic motivation is innate to humans, while the ideal self is dynamic and impacted by many factors (Boyatzis and Dhar 2022). By nature, school-aged youngsters are primarily concerned with present enjoyment—that is, whether reading Chinese is interesting to them. This indicates that making Chinese reading instruction more enjoyable and developing interesting materials that are appropriate to the student's level are necessary.

## 5.2 Learning engagement: an effective means of translating inner drive into observable performance

Learning engagement as the mediation between intrinsic motivation and reading performance was supported by results that are consistent with the theoretical assumption of Martin,s (2009) statement and Guthrie and Klauda,s (2016) Reading Engagement Model. From the perspective of intrinsic motivation, intrinsic motivation in one sense exists within individuals and in another between individuals and activ-

ities (Deci and Ryan 1985). However, despite the evidence that people have abundant intrinsic motivational tendencies, this predisposition seems to only happen in certain circumstances (Ryan and Deci 2000). In spite of mixed findings, the literature supports that intrinsic motivation can be present in learning to read English L1 and L2, German L1, and Chinese L1 and has variable effects on students, reading performance (e.g., Kanonireetal.2022; Schaffneretal. 2013; Stutzetal.2016; Troyeretal. 2019; Wang et al. 2022). Our study further confirms that intrinsic motivation also can be applied to Chinese L2 learning. In addition, our findings are consistent with Stutz et al.,s (2016) research that found the full mediation of reading activities between intrinsic motivation and the L1 reading comprehension of German students in Grade 2. Notably, Becker et al.,s (2010) result showed that the mediating function of reading activity between intrinsic motivation and reading performance disappeared when students, reading performance from the previous year was included in the model. Guthrieetal.,s (1999) research state that prior knowledge allows students to perform better on reading tests. We attribute this to the fact that children in the early grades do not differ much in their base language (e.g., most first-grade NCS students in Hong Kong do not usually have a good foundation in Chinese reading). The impact of their psychological drive and related behaviors on language learning, thus, will be more significant.

With comparable base languages, the differences in NCS students, Chinese reading performance are likely due to different learning activities, as we discovered that learning engagement had the most significant direct effect on reading performance ( $\beta = 0.446$ ,  $p < 0.01$ ). The path of conceptual intrinsic motivation influencing observable reading performance via materialized engagements is also consistent with the theoretical construct of intrinsic motivation. The phenomenon of intrinsic motivation was initially recognized in animal behavior experiments when it was shown that many organisms engage in exploratory, playful, and curiosity-driven behaviors without reinforcement or reward (White 1959). Thus, intrinsically motivated behaviors were always said to be ones that satisfy innate psychological demands (Ryan and Deci 2000). Concerning the ideal L2 self, we believe it still directly affects learning engagement to some extent. This is because Plonsky and Oswald (2014) proposed that the alpha value of 0.1 is acceptable for linguistic research, and the path coefficient of the ideal self to

learning engagement is approaching a significant level ( $S.E. = 0.079$ ,  $p = 0.119$ ). Theoretically, the ideal L2 self can have a significant effect on learning engagement, but the results of this study did not fully achieve significance, suggesting that additional research is required in this age group to evaluate the conditions and applicability of the theory of the ideal L2 self in younger children.

### 5.3 Significance and suggestions

The current study makes theoretical contributions to the literature and provides empirical implications for language instruction. On a theoretical level, this study is one of the first to reveal the effect of psychological elements on early elementary school-aged children in a CSL context. It fills the gap in previous research on related situations that exclusively focuses on children after Grade 4, as well as the gap in studies on CSL reading in early elementary school that is limited to the metalinguistic skills of the Chinese writing system. In addition, this study provides empirical evidence for the refinement and development of the L2MSS theory. The insignificant effect of the ideal L2 self on L2 Chinese literacy development for first graders shows that this concept is dynamic and might be sensitive to age. Combined with Wong, S. (2018) findings on the significant role of the ideal self in L2 Chinese learning among NCS fourth-grade elementary students in Hong Kong, we call for more longitudinal research on the developmental processes and characteristics of the ideal L2 self in elementary school in the future. Moreover, the instruments in previous studies that measure students' ideal self are not specifically developed for younger students (Dörnyei 2009), suggesting that a new questionnaire can be designed to be more suitable for their cognitive levels and to focus more on their interest in the future (e.g., including items such as "I can imagine that I will make many friends with Chinese-speaking students in the future").

At the pedagogical level, the pathways of influence identified in this study for intrinsic motivation, learning engagement, and reading performance suggest that intrinsic motivation is a favorable element in affecting learning-related behaviors and can assist early elementary school-aged children in overcoming disparities in learning behavior caused by individual variances. Intrinsic motivation can be accomplished by providing positive feedback and facilitating various problem-solving activities with a favorable effect (e.g., Ryan and Deci 2000). It is also worth noting that as children get older, their intrinsic motivation decreases (Nurmi and Aunola 2005; Spinath and Spinath 2005), indicating that teachers need to maintain and enhance the intrinsic motivation of children in the early elementary grades, which stimulates behavioral, emotional, and cognitive responses and ultimately improves their reading performance. In addition to these, multidisciplinary



Chinese language materials that are appealing and properly challenging should be considered for future development, especially considering the widespread use of the Chinese language in the Chinese community, schooling and daily life.

## 6 Conclusion

The present study examined the role of two motivational dimensions, the ideal L2 self and intrinsic motivation, and learning engagement in the CSL reading performance of early elementary school students. It reveals that children around the age of six are a present-minded group who are more likely to be attracted to reading tasks that are interesting to them in the moment. Therefore, the ideal L2 self did not have a significant predictive relationship with learning engagement and reading performance. Moreover, compared with the direct effect of intrinsic motivation on reading performance, a stronger indirect influence was found between intrinsic motivation and reading performance via engagement as a complete mediator.

However, despite these significant and promising findings, there are still some limitations that merit further exploration. First, some demographic factors were not considered in our analysis. For example, gender (You et al. 2016), family support, and socioeconomic status (Yao et al. 2021) have been reported in the literature, all of which may influence the motivational orientations of L2 learners. Thus, future researchers concerning younger L2 learners, psychological status and behavioral response can add or control more variables from a sociocultural perspective. Second, in our study, both motivational variables are inner psychological states that are primarily motivated by the students themselves. However, this paper does not discuss extrinsic motivation, which is commonly discussed alongside intrinsic motivation in self-determination theory, or the role of the “ought-to self,” which is opposed to the ideal self in L2MSS theory. Future research could investigate the relationship between these motivational concepts in a more systematic manner. Finally, the sampling method can be further optimized. To overcome the limitations of self-reporting instruments in young school-aged children, researchers may need to incorporate extra observations (e.g., from teachers) or alternative assessment tools, such as scenario-based examinations (Kanonire et al. 2022).

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