1 **Exploring relationships between L1 and L2 writing strategy use and integrated writing**
2 **performance: A cross-linguistic perspective**

3 **Abstract**

4 The ability to produce a well-written text in English using multiple material resources, such as
5 integrated writing (IW), is widely recognised as a crucial literacy skill for tertiary students. While
6 previous researchers have extensively examined the factors contributing to second language (L2)
7 English integrated writing, the impact of students' first-language (L1) Chinese writing strategic
8 knowledge and skills on L2 writing performance has received limited empirical attention.
9 Therefore, this study aimed to investigate the simultaneous relationship between L1 and L2 writing
10 strategy use, L1 writing skills, and L2 IW performance among 239 Chinese university students.
11 Results from structural equation modelling revealed that L1 IW strategy use could predict L2 IW
12 strategy use. Furthermore, the use of L1 IW strategies indirectly predicted L2 IW performance
13 through the use of L2 IW strategies. This study contributes to the existing literature by extending
14 research on cross-language effects in the IW context. Additionally, based on the findings,
15 pedagogical implications for teaching IW across two languages are proposed.

16 *Keywords*: cross-linguistic perspective; Chinese EFL undergraduates; L1 and L2 writing strategy
17 use; L1 and L2 integrated writing.

18 **1 Introduction**

19 With the multiple sources of information, generating a well-organized text is truly a complex but
20 critical literacy skill for both L1 and L2 students, especially for university students who are often
21 required to write an academic text based on extensive reading materials in the authentic learning
22 context (Cumming et al., 2016, 2018; Plakans, 2012; Wette, 2018). For example, they need to write
23 up a synthesis text (e.g., summary writing) or complete a lengthy degree thesis based on multiple
24 documents. To succeed in such integrated literacy tasks, students need to rely on writing strategies
25 such as actively engaging in multiple resources in a critical manner (Plakans, 2008; Yang and
26 Plakans, 2012), synthesising information from the sources to convey and support their own stance
27 (Plakans, 2009; Yang, 2014), and ultimately achieving their communicative goals in the written
28 form. With English as a lingua franca in the academic community, integrated writing (IW) appears
29 to be a more complicated and difficult skill among students who learn English as a second language
30 (L2) (Cumming et al., 2018).

31   In addition to writing in English, students nowadays who live and study in such a
32 multilingual world are expected to become multiliterate (Cody et al., 2022; Rinnert and Kobayashi,
33 2016). Thus, in order to develop students' agency to respond to multilingual communicative
34 demands, we should place greater emphasis on fostering students' multicompetence (e.g.,

multilingual writing) (Gentil, 2021). Furthermore, as the extant multilingual theories proposed, students' language skills (including L1 and L2 strategic skills) can be used as assets to support their written communication in L2 (Cummins, 1980, 2016; Forbes and Fisher, 2018). This argument has been empirically supported in prior literature on the independent writing task, such as L1 use during L2 writing (Rinner et al., 2015; van Weijen et al., 2009; Wang and Wen, 2002), transfer of strategy use and textual structure from L1 to L2 (e.g., Guo and Huang, 2020; Leijten et al., 2019; Wei et al., 2020), and the influence of L1 reading and writing skills on L2 writing (e.g., Kim and Pae, 2021; Pae, 2019; Saeli and Cheng, 2019).

Despite the fruitful research findings, the vast majority of research into the development of writing strategies for integrated writing has taken place within a single context of either L1 or L2, with less attention to the potential interactions between the two (Forbes, 2019; Leijten et al., 2019). Furthermore, as previous researchers maintained, the universal nature and challenges of learning to write effectively from sources make it difficult to draw absolute distinctions between the writing of L1 and L2 students, particularly given the small numbers of student populations and writing tasks examined to date" (Cumming et al., 2016, p. 52). We need to conduct more within-subject comparisons based on larger-scale data to disentangle the differential effects of knowledge and abilities to write from sources across L1 and L2. Addressing this concern could provide researchers and educators with a fuller picture of the relationship between L1 and L2 IW skills.

2   Literature review

2.1 Linguistic interdependence and cross-language transfer in language learning

Cummins (1980) proposed the linguistic interdependence hypothesis, which suggests that the development of second language (L2) proficiency is partially influenced by the learners' proficiency level in their first language (L1) at the onset of L2 exposure. To better explain the processes leading to the interdependence of language skills, Cummins (1980) made a distinction between communicative language skills and cognitive/academic language skills. The former pertains to communicative competence, including accent, oral fluency, and sociolinguistic competence, while the latter refers to general cognitive or academic skills such as linguistic skills (e.g., vocabulary and syntax), problem-solving skills, and literacy skills.

According to the interdependence hypothesis, the acquisition of literacy skills in one language not only promotes literacy development in that language but also influences literacy skills in the other language (Verhoeven, 1994). This indicates the existence of an underlying proficiency common to multiple languages, facilitating the transfer of literacy-related skills once a certain level of language proficiency has been achieved (Cummins, 1980). This hypothesis offered the theoretical foundation for cross-language studies in L2 literacy learning, particularly cross-language transfer between L1 and L2 (e.g., Cheong et al., 2019; Forbes and Fisher, 2020; Guo and Huang, 2020). To date, a significant amount of research has indicated moderate yet consistent

relationships between L1 and L2 literacy competencies from different angles and in different linguistic contexts (Cummins, 2016), such as cognitive processes (Cumming et al., 1989; Hirose, 2003; Johnson, 2020; Mohsen, 2021), strategic knowledge (Beare and Bourdages, 2007; Guo and Huang, 2020; Whalen and Menard, 1995), writing-related skills including linguistic knowledge and reading skills (Schoonen et al., 2003; Zhu et al., 2021), and textual features in the written products (Kubota, 1998; Van Weijen et al., 2019; Wei et al., 2020).

However, the majority of previous studies focused on independent writing activities, with very limited knowledge of the relationships of integrated writing skills between L1 and L2, particularly two dissimilar languages (e.g., Chinese and English). Under the linguistic interdependence theory, the underlying proficiency may exist, which is common across Chinese and English. In this sense, students' cognitive or academic skills of L1 Chinese integrated writing, including strategy use and writing competence may be transferred to L2 English integrated writing.

2.2 The relationship between writing strategy use and integrated writing performance in L1 and L2

Writing strategies refer to "writers' conscious thoughts or actions toward proficient writing output" (Guo and Huang, 2020, p. 716). As a sort of procedural knowledge, strategies are of great importance in writing, functioning as a mental tool to "provide writers with a series of work hypotheses as to structural and conceptual decisions to express intended meaning" (Whalen and Menard, 1995, p.385). Compared with independent writing tasks (writing based on writers' prior experience, Plakans, 2010), IW involves writers' multi-literacy skills such as reading, listening, discourse synthesis, and writing (Cumming et al., 2005; Gebril and Plakans, 2013; Knoch and Sitajalabhorn, 2013). It can authentically reflect students' multi-literacy skills which are required for naturalistic academic studies, especially at the tertiary level (Cumming et al., 2005; Gebril and Plakans, 2013; Zhu et al., 2021). To achieve success in such complex literacy activity, writing strategies, such as monitoring, evaluation, and discourse synthesis, seem essentially important for students to support their writing (e.g., Yang and Plakans, 2012; Yang, 2014; Zhang, 2013).

A great body of empirical research has been conducted to date on the writing strategy use in both L1 and L2 settings. Similar to typical independent writing, planning, monitoring, and evaluation are also critical strategies for IW (Leijten et al., 2014; Segev-Miller, 2007; Stein, 1990). Planning refers to the process of building the internal representation of text products, monitoring is an abstract mental skill for regulating writing processes in order to maintain writing goals, and evaluation is writers' reexamination of their task fulfilment through reconsidering task requirements and planned thoughts, reviewing written texts, and making revisions accordingly (Hayes, 2012; Stein, 1990). In addition to these common strategies, writers need to comprehend and select relevant information and more importantly integrate the information into a new text through connecting (building up connections among information from materials) and organising (decomposing the source materials and creating a new organisational pattern) (Nelson and King,

1 2022; Spivey and King, 1989; Spivey, 1997; Van Ockenburg et al., 2019). Meanwhile, under the
2 assessment context, the test-wiseness strategy (helping incompetent writers complete their tasks) is
3 another feasible category that should be considered (Cohen, 2013). For example, students directly
4 copied linguistic expressions from provided materials in an effort to refine the language and
5 contents of their own written texts.

6   The effectiveness of strategy use in relation to writing outcomes has been supported by
7 empirical evidence (e.g., Guo and Huang, 2020; Leijten et al., 2019; Stevenson et al., 2006; van
8 Weijen et al., 2019). For instance, Leijten et al. (2019) conducted a study on postgraduates' source
9 use in an L1 Dutch synthesis writing task and an L2 English synthesis writing task. They found a
10 positive correlation between the interaction of source materials and the writing quality in L1.
11 Besides, the interaction of source materials positively predicted the L1 text quality. The authors
12 likewise found a significant prediction of secondary students' discourse synthesis on L1 Chinese
13 IW scores, with connection and summarisation strategies being the most influential factors (Zhu et
14 al., 2020). In the L2 writing context, Yang and Plakans (2012) developed a questionnaire based on
15 L1 independent writing research and supporting evidence from L2 studies to measure strategies
16 used in integrated reading-listening-writing tasks by EFL university students in America. The
17 questionnaire consists of three strategic categories: self-regulation (including monitoring and
18 evaluation), discourse synthesis (including selection, connection, and organisation), and test
19 wiseness. Their study concluded that L2 students' use of IW strategies positively influenced their
20 IW performance.

21   Similarly, Yang (2014) developed a model of strategies for L2 summary writing among
22 Chinese EFL undergraduates, which included planning, evaluating, discourse synthesis, and source
23 use. Her findings revealed that discourse synthesis and source use had a positive impact on
24 students' writing performance, while planning and evaluating indirectly influenced writing
25 performance. However, Leijten et al. (2019) did not find a significant relationship between source
26 use and the L2 writing performance of Dutch EFL learners. They attributed the absence of
27 significant relations to students' lack of variance of source use and the small dataset in L2.
28 Considering the mixed findings in previous L1 and L2 writing literature, further research is needed
29 to explore and specify the relationship between writing strategy use and IW performance.

30 **2.3 The relationship between L1 and L2 writing strategy use**

31 Grounded on Cummins's assumption, a wealth of empirical studies have observed the close
32 relationship between L1 and L2 writing skills (Beare and Bourdages, 2007; Cumming et al., 1989;
33 Johnson, 2020). The thread of research on the writing strategy remains a central area, attracting
34 considerable attention over recent decades (Forbes, 2020; Guo and Huang, 2020; Xu & Zhu, 2024).
35 While there has been limited empirical investigation into the relationship between L1 and L2
36 strategy use in source-based writing activities, previous research has offered valuable insights on

this issue. Cumming et al. (1989) investigated 14 L1 English undergraduates who were studying L2 French and found the strategic equivalences in summarisation and problem-solving between the two languages. Besides, the strategies used by students were correlated with the qualities of both English and French summaries. Leijten et al. (2019) observed the similarities in students' source use behaviours, such as initial reading time, source interaction, and use of source information between the L1 Dutch and L2 English source-based writing tasks. In contrast, another recent within-subject comparison by van Weijen et al. (2019) indicated that students' source use behaviours (e.g., percentage words in text copied from sources) during source-based argumentative writing were significantly different between the L1 Dutch and L2 English. Despite the existing evidence on the differences between L1 and L2 writing strategies, the exact effect of L1 writing strategy use on L2 writing strategy use in the context of source-based writing is not yet fully understood. We thus expanded our literature search to independent writing in a general sense.

For instance, Kobayashi and Rinnert's study (2012) revealed that Japanese students reused and reshaped their L1 writing knowledge in L2 English text construction. As claimed by Polio (2017), "writing conventions in the L2 might not be made explicit, and students are left to draw on their L1 discourse knowledge" (p. 268). More recently, Guo and Huang (2020) revealed that rhetorical, communicative, cognitive, and approach strategies were significantly correlated between L1 Chinese and L2 English writing. Therefore, based on previous empirical evidence, we assumed that students' strategic knowledge in L1 source-based writing activities could significantly predict their L2 strategic knowledge.

**2.3 The corss-language influence L1 writing-related skills on L2 writing performance**

Previous studies on independent writing have indeed extensively examined the relationship between L1 and L2 writing skills (e.g., Kim and Pae, 2021; Pae, 2019; Sasaki and Hirose, 1996; Schoonen et al., 2003). For instance, Schoonen et al. (2003) found that the writing ability of Dutch grade 8 students in their L1 positively predicted their L2 English writing performance. Similarly, Pae (2019) and Kim and Pae (2021) suggested that Korean EFL students' L1 narrative and argumentative writing ability positively influenced their L2 English narrative and argumentative writing ability. On the contrary, Pennington and So (1993) discovered no correlations between L1 and L2 writing skills among Singapore university students.

Within the field of integrated writing, the cross-language influence from L1 to L2 writing skills has become an increasingly important issue in existing literature. For instance, Corbeil (2000) examined the L1 English and L2 French summary writing skills of English-speaking undergraduates. The study found that students' performance in source use (such as paraphrasing) and language use in L1 significantly predicted their L2 writing performance. Likewise, Makiko (2018) conducted a recent study on Japanese ESL undergraduates' summary writing skills. The findings revealed that students' performance in summarising skills in L1 Japanese, including main

idea coverage and source use, influenced their performance in L2 English summarising skills, such as main idea coverage, integration, and source use. More recently, van Weijen and colleagues' (2019) study on undergraduates' source-based argumentative essay writing found that L1 Dutch and L2 English writing performance are positively correlated.

In addition to the impact of L1 writing ability on L2 writing ability, the potential cross-language influence of L1 writing-related knowledge or skills on L2 writing performance is a significant issue (Kim and Pae, 2021; Pae, 2019). In the context of integrated writing (IW), Yu (2008) examined Chinese undergraduates' L1 Chinese and L2 English summary writing and concluded that Chinese summarisation skills were a better measure of students' English reading skills. Furthermore, we revealed that students' L1 Chinese multiple-text reading ability can predict L2 IW performance through the mediation of L2 English multiple-text reading ability (Cheong et al., 2019). Additionally, the use of common discourse synthesis strategies positively predicted both L1 Chinese and L2 English IW performance. Similarly, a series of studies by the Author suggested that students' psychological factors related to L1 IW, such as ideal self and self-efficacy, indirectly influenced L2 IW performance among Chinese EFL learners (Zhao et al., 2023). These findings supported the assumption of the cross-language influence of L1 writing-related abilities on L2 writing performance. Despite the important evidence in prior literature, there is still a lack of relevant studies on the relationship between L1 and L2 IW performance among EFL undergraduates in the Chinese context, where a substantial number of university students must learn English as a foreign language, and the government places increasing emphasis on the development of their integrated literacy skills. Moreover, although previous studies supported the importance of L1 writing skills to L2 writing, more empirical research is warranted to advance our understanding of the potential cross-language influence of students' strategic skills in L1 IW on L2 IW performance.

Consistent with the theory and prior research evidence, the central purpose of this study was to investigate the relationships between L1 and L2 IW strategy use, L1 IW performance and L2 IW performance with four hypotheses proposed: (1) the L1 and L2 IW strategy use can respectively predict L1 and L2 IW performance (Leijten et al., 2019; van Weijen et al., 2019; Yang and Plakans, 2012); (2) L1 IW strategy use can predict L2 IW strategy use (Guo and Huang, 2020; van Weijen et al., 2019); (3) L1 IW performance can predict L2 IW performance (Cumming et al., 1989; Cheong et al., 2019 and 3); and (4) L1 IW strategy use could predict L2 IW performance via the mediation of L2 IW strategy use and L1 IW performance (Forbes, 2020; Cheong et al., 2019), respectively (see Figure 1).
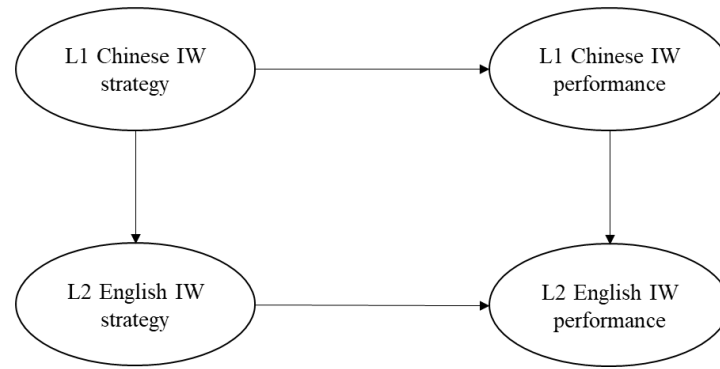
Figure 1. Hypothesised model

In accordance with the above concerns, we proposed four primary research questions:

RQ1: What are the relationships between L1 Chinese strategy use and L1 Chinese IW performance and between L2 English strategy use and L2 English IW performance?

RQ2: What is the relationship between L1 Chinese and L2 English IW strategy use?

RQ3: What is the relationship between L1 Chinese and L2 English IW performance?

RQ4: What is the relationship between L1 IW strategy use and L2 IW performance?

3 Method

3.1 Participants

The data were collected from 239 first-year English major students ($Mean_{age}$ = 19.15, SD = 0.79, 88.3% females) from a state-owned university in the south of China. The majority of students have learned English since Grade 3 in primary school, and thus, they have more than 10 years of English learning experience ($Mean_{year}$ = 10.9, SD = 1.69). According to their English proficiency test scores on the nationwide College Entrance Examination ($Mean_{L2}$ = 120.77 out of 150, SD = 8.67), all participants' L2 proficiency was at or above a high-intermediate level. In this case, they were assumed to be competent to complete the complex L2 IW task of this study, which was our primary reason for choosing English majors as research subjects (see Cumming et al., 2016). Participants submitted their written essays and surveys voluntarily, and we considered that submittal to be their informed consent to participate in the study.

3.2 Instruments

3.2.1 L1 Chinese and L2 English IW tasks

We developed an L1 Chinese IW task and an L2 English IW task to measure the participants' overall L1 and L2 IW skills, with reference to previous studies (Cheong et al., 2019) as well as language experts' and teachers' suggestions. To ensure the equivalence of the two tasks, we chose topics of interest that were debatable and familiar to the students. Each task consisted of four

reading materials and a writing prompt. The reading materials in this study were collected from diverse resources with different aspects around the writing topic. Specifically, students should summarize the different viewpoints on the topics of interest from given source materials and convey their opinions. Besides, they must evaluate and utilize relevant information from source materials to support their stances.

The L1 Chinese IW task. The Chinese IW task concerned "choosing majors in the universities," which was a prevalent issue among university students. The task started with a scenario in which a girl from a low-income family in a rural area of China achieved the highest score in the nationwide college entrance examination and chose to major in Archaeology at a top university. This sparked intense debates regarding two crucial aspects: the personal interest and job prospects associated with selecting university majors. The reading materials consisted of (1) a news report about the government's preparations for the annual national university entrance examination, (2) an excerpt from a survey report describing the current trend of selecting majors according to university students' individual interests, (3) a report adapted from the news about the fact that artificial intelligence has become a promising major for university students, as it would bring high salaries in the future, and (4) quotations from parents' views of students' processes for choosing majors. Experts and front-line Chinese teachers agreed that the difficulty of source materials was appropriate for the participants. The participants were required to compose a Chinese argumentative essay of no less than 600 Chinese characters from given materials within one hour.

The L2 English IW task. The English (L2) IW task was about "the threat of foreign languages to the Chinese language." Due to globalisation, using foreign languages in work and life has become a social trend. Some have regarded it as a threat to the purity of the Chinese language, while others thought that using foreign languages can benefit cultural exchange. Around this controversial topic, four reading materials were offered: (1) an essay discussing the situation in which the Chinese language was losing its purity; (2) an excerpt from an English magazine focusing on the relationships between using foreign words and cultural exchange or invasion; (3) an introduction of language families, excerpted from a textbook; and (4) a short essay supporting the use of foreign words. The four passages were assumed to have an appropriate difficulty level for L2 undergraduates, with Flesch-Kincaid reading ease scores ranging from 37.4 to 48.3 (e.g., Plakans, 2008). Experts and front-line English teachers also agreed that the difficulty of source materials was appropriate for the participants. The participants were required to compose an English argumentative essay of no less than 200 words from given materials within one hour.

The IW scoring rubrics. To evaluate the students' overall IW performance in L1 and L2, we adapted the five-scale, four-trait analytical IW scoring rubrics (Zhu, 2005). Its appropriateness has manifested in previous studies (Cheong et al., 2019; Author 2). The scoring scheme involves contextual awareness (a sense of reader and context), citation and synthesis (important information that is concisely quoted or rephrased from the source texts based on writers' needs), opinion and

argument (writers' opinions to explain a position and related evidence), and organisation and expression (including writing accurately, concisely and fluently and presenting ideas cohesively with a clear structure). Each trait includes five scales with Level 1 (1-2 points), Level 2 (3-4 points), Level 3 (5-6 points), Level 4 (7-8 points), and Level 5 (9-10 points). The full score was 40 points.

3.2.2 Questionnaire

The questionnaire consisted of two sections. The first section collected the participants' background information, including name, gender, age, and English proficiency test scores in the College Entrance Examination. The second section included two parallel scales for L1 IW strategy use and L2 IW strategy use developed based on Yang and Plakans' (2012) study. To accommodate our research context, namely reading-to-writing tasks, we deleted the items related to the listening part in the validated questionnaire, which left 18 items, including self-regulation (6 items for monitoring and 2 items for evaluation), discourse synthesis (4 items for organisation and 3 items for connection), and test-wiseness (3 items). The example item statement was that "*I reread my essay and made sure my English/Chinese was correct*". The five-point Likert scale was adopted to measure students' frequency of L1 and L2 IW strategy use ranging from 1 (least used) to 5 (very often). The internal consistency of the three sub-scales (i.e., self-regulation, discourse synthesis, and test-wiseness) were 0.90, 0.87, and 0.76 for L1 Chinese IW strategy and 0.90, 0.90, and 0.60 for L2 English IW strategy.

4 Procedure

4.1 Data collection

The L1 and L2 IW tasks and strategy questionnaires were administered to the participants in the first semester. First, students were required to accomplish the L1 IW task, and after a 10-minute interval, they filled out the background information and L1 IW strategy scale in 15 minutes. After one week, students followed the same procedure, accomplishing the L2 IW task and the L2 IW strategy scale. Both the writing tasks and the questionnaire were administered to students online. The L1 IW and L2 IW texts were assessed by two separate groups of experienced raters, with two raters in each group. The Chinese group's raters possess master's degrees in Chinese Language Studies, while the English group's raters hold master's degrees in English Language Studies.

Prior to scoring, the rater training session was conducted. The focus meetings were organized among each group of raters to familiarise the raters with the two IW tasks and respective scoring rubrics. During the training session, anchor essays of different levels for respective L1 and L2 IW tasks were provided for raters' better understanding of rubrics. They were asked to evaluate the selected sample essays based on rubrics, and the disagreements among raters and researchers were resolved. After that, we carried out trial marking in which two groups of raters scored 30 L1

sample essays and 30 L2 sample essays. To ensure scoring reliability, additional meetings were held to resolve any disagreements between two raters in each group during the trial session. Subsequently, the main marking was carried out, during which two groups of raters scored the rest of the essays independently. If discrepancies between two raters in each group exceeded two points in each trait, a third rater was involved, whose score was summed and averaged with the closest score assigned by two raters. The Pearson correlation analysis was conducted to examine the inter-rater reliability. The inter-rater reliability of each of the four subscales was at an acceptable level (see Table 1) (Penny et al., 2000).

Table 1. Inter-rater reliability of four aspects of students' L1 and L2 IW performance

	Contextual awareness	Citation and synthesis	Opinion and argument	Organisation and expression	Overall scores
L1 IW	.77**	.84**	.86**	.87**	.83**
L2 IW	.78**	.80**	.79**	.77**	.84**

Note. *p < .05., **p < .01.

4.2 Data analysis

First, descriptive statistics (i.e., mean, standard deviation, skewness, and kurtosis) were calculated using SPSS 27 to examine the central tendencies, variations, and distributional properties of the data. In addition, bivariate correlations between the writing strategy use and IW performance in L1 and L2 were examined. Then we used Mplus 8.3 (Muthén and Muthén, 2017) to conduct subsequent analysis. Firstly, we examined the construct validity of the L1 and L2 IW strategy questionnaires using confirmatory factor analysis (CFA). Following Yang and Plakans' (2012) analytical strategies, we used the means of monitoring and evaluation items to measure self-regulation. We also used the means of organisation and connection items to measure discourse synthesis. Test-wiseness was measured by the three items in the questionnaire (TM1-TM3). Specifically, the items for the L1 IW strategy and L2 IW strategy were loaded onto their respective factors. To rule out the possibility that the L1 IW strategy and L2 IW strategy may be one construct, we tested an alternative model with items for the L1 and L2 IW strategy loading onto the same factor.

To test the hypothesised model, the two-step SEM was carried out: the measurement model was testified first through the confirmatory factor analysis (CFA). In the second step, SEM was adopted to testify the direct and indirect effects of L1 IW strategy use on L2 IW performance if the model fit of the measurement model was satisfactory. To be specific, first, the measurement model was testified through CFA. Then, SEM was adopted to test the structural relations among variables

1   of interest if the model fit of the measurement model was satisfactory. The maximum likelihood

2   method (MLM) estimator was used to estimate the parameters. We checked the following fit indices:

3   the Chi-square statistic (χ^2), the comparative fit index (CFI), the root-mean-square error of

4   approximation (RMSEA), and the standardised root-mean-square residual (SRMR). An acceptable

5   level of model-data fit requires that the CFI be larger than 0.90 and the RMSEA and the SRMR be

6   smaller than 0.08 (Kline, 2015).

5   Results

5.1 Constructs of L1 and L2 IW strategy use

9   In CFA models (see Figure 2), the items measuring L1 and L2 IW strategy use were loaded onto

10   their respective factors. For L1 IW strategy use, fit indices indicated that the model fit the data

11   well: $\chi^2 = 15.583$, $df = 11$, $p > 0.05$, CFI = 0.994, RMSEA [90% CI] = 0.042 [0.000 - 0.085], and

12   SRMR = 0.030. Regarding L2 IW strategy use, the fit indices showed that the model was an

13   acceptable fit for the data: $\chi^2 = 18.754$, $df = 11$, $p < 0.001$, CFI = 0.977, RMSEA [90% CI] = 0.076

14   [0.039 - 0.0114], and SRMR = 0.033. An alternative model was also testified with L1 and L2 IW

15   strategies items loading onto the same factor. The model did not fit the data: $\chi^2 = 477.524$, $df = 74$,

16    $p < 0.001$, CFI = 0.764, RMSEA [90% CI] = 0.151 [0.138 - 0.164], and SRMR = 0.083. In

17   addition, compared the new model with CFA models of L1 and L2 IW strategy, the changes of Chi-

18   Square values were significant: $\Delta\chi^2(63) = 461.941$, $p < .001$ for L1 IW and $\Delta\chi^2(459) = 458.77$, $p <$

19   .001 for L2 IW. This suggested that loading L1 and L2 IW strategies items onto the same factor

20   significantly changed model-data fit. Thus, L1 and L2 IW strategy use were not identical

21   constructs.
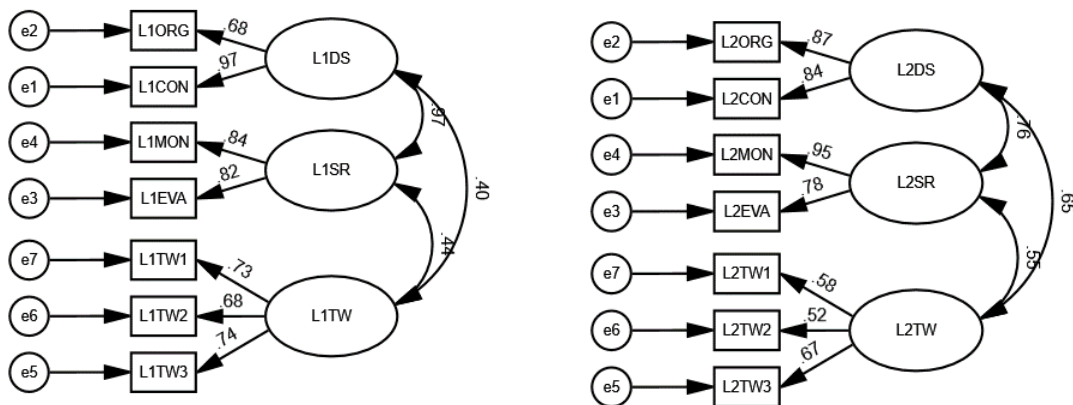
Figure 2. CFA models for L1 and L2 IW strategy use

23   Note. ORG = Organization; CON = Connection; MON = Monitoring; EVA = Evaluation; TW =

24   Test-wiseness; DS = Discourse synthesis; SR = Self-regulation; TW = Test-wiseness.

5.2 Descriptive statistics and bivariate correlations among primary variables

1   The descriptive statistics of the writing strategy use and performance in L1 Chinese and L2 English
2   IW are presented in Table 2. The correlational analysis results are presented in Table 4. L1 IW
3   strategies were significantly correlated with L2 IW strategies with $r > 0.50$. According to Pair-
4   sample t-test results, among three strategic categories, the significant difference was only
5   discovered in the test-wiseness between L1 and L2 IW (t (238) = -2.61, $p < .05$). It was indicated
6   that students generally showed a similar strategy use in L1 and L2 IW tasks, while they used more
7   frequently test-wiseness strategy in L2 IW than L1 IW.

8   **Table 2.** *Descriptive statistics of the measured variables*

	M	SD	Skewness	Kurtosis
L1 Monitoring	3.51	0.69	-0.18	-0.37
L1 Evaluation	3.50	0.71	-0.16	0.09
L1 Organisation	3.33	0.67	-0.06	-0.16
L1 Connection	3.54	0.62	-0.17	0.31
L1 Test-wiseness 1	3.32	0.96	-0.34	-0.11
L1 Test-wiseness 2	2.98	1.03	0.09	-0.60
L1 Test-wiseness 3	3.33	0.88	-0.32	-0.03
L2 Monitoring	3.54	0.59	0.00	-0.14
L2 Evaluation	3.58	0.64	0.05	0.13
L2 Organization	3.38	0.64	0.12	0.04
L2 Connection	3.61	0.62	0.02	-0.19
L2 Test-wiseness 1	3.46	0.86	-0.20	-0.32
L2 Test-wiseness 2	3.08	0.95	-0.06	-0.32
L2 Test-wiseness 3	3.45	0.79	-0.47	0.23
L1 Contextual awareness	4.22	0.60	0.52	-0.37
L1 Citation and synthesis	4.70	0.80	-0.07	0.11
L1 Opinion and argument	4.95	0.85	-0.02	-0.20
L1 Organization and expression	5.17	0.73	-0.06	0.36
L2 Contextual awareness	3.50	0.96	0.46	0.63
L2 Citation and synthesis	4.77	0.91	-0.45	0.88
L2 Opinion and argument	4.70	1.06	-0.37	0.49
L2 Organisation and expression	5.11	0.90	-0.52	1.25

9   **5.3 Structural equation modeling results**

10   To further explore the associations between the target variables, the SEM analysis was conducted.
11   In this study, the respective mean values of the three subdimensions in L1 and L2 writing strategy
12   use were calculated for the subsequent SEM analysis, according to the guidelines in Wang et al.
13   (2021). In the first step, the results showed that the data fit the measurement model adequately: χ^2
14   = 173.630, df = 71, $p > 0.05$, CFI = 0.929, RMSEA [90% CI] = 0.078 [0.063 - 0.093], and SRMR =
15   0.061. In the second step, SEM was performed to test the hypothesised model. Fit indices indicated
16   that our model reached an acceptable level fit to the data (see Figure 3): χ^2 = 177.311, df = 72, $p <$
17   0.001, CFI = 0.929, RMSEA [90% CI] = 0.078 [0.064 - 0.093], and SRMR = 0.061.

18   We found that L2 writing strategy use significantly predicted L2 IW performance (β =
19   0.320, S. E. = 0.133, $p < .05$, 95% CI = [0.101, 0.535]), while L1 writing strategy use did not

possess the significant prediction on L1 IW performance (β = 0.059, S. E. = 0.079, p = 0.458) (RQ1). To address RQs 2 and 3, the result showed that the L1 IW strategy use significantly predicted L2 IW strategy use (β = 0.735, S. E. = 0.065, p < .001, 95% CI = [0.626, 0.858]), and that L1 IW performance significantly predicted L2 IW performance (β = 0.178, S. E. = 0.085, p < .05, 95% CI = [0.031, 0.311]). This suggested the cross-linguistic transfer from L1 IW to L2 IW in terms of strategy use and writing competence. In addition, we further found that L1 IW strategy use had significant prediction on L2 IW performance via L2 IW strategy use as the mediator (β = 0.235, S. E. = 0.107, p < 0.05), which responded to our RQ 4. However, The indirect effect of the L1 writing strategy on L2 IW performance via the L1 IW performance was insignificant (β = 0.010, S. E. = 0.017, p = 0.549).

Table 3. *Bivariate correlations of the strategy use and performance in L1 and L2 IW*

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
1 L1MON	1																					
2 L1EVA	.69**	1																				
3 L1ORG	.58**	.51**	1																			
4 L1CON	.79**	.77**	.66**	1																		
5 L1TW1	.29**	.27**	.27**	.28**	1																	
6 L1TW2	.14*	.21**	.16*	.20**	.52**	1																
7 L1TW3	.29**	.33**	.215**	.34**	.53**	.51**	1															
8 L2MON	.60**	.50**	.49**	.55**	.26**	.15*	.27**	1														
9 L2EVA	.43**	.45**	.40**	.42**	.17**	0.11	.22**	.75**	1													
10 L2ORG	.42**	.33**	.48**	.38**	.28**	.23**	.22**	.63**	.52**	1												
11 L2CON	.45**	.34**	.48**	.47**	.26**	.19**	.25**	.62**	.48**	.73**	1											
12 L2TW1	.17*	.11	.15*	.12	.40**	.26**	.29**	.24**	.23**	.41**	.38**	1										
13 L2TW2	.20**	.18**	.26**	.17**	.35**	.44**	.26**	.26**	.26**	.28**	.27**	.27**	1									
14 L2TW3	.23**	.30**	.26**	.25**	.37**	.30**	.39**	.38**	.40**	.33**	.32**	.38**	.38**	1								
15 L1CA	.15*	.12	.10	.13*	.08	.08	.03	.08	.03	.06	.06	-.02	.05	.01	1							
16 L1CS	.00	.02	.02	.04	-.07	-.03	-.05	.00	-.08	.03	.05	.03	.01	-.08	.19**	1						
17 L1OA	.10	.09	.02	.13*	-.03	-.09	-.09	.01	-.03	-.07	-.03	-.10	-.05	-.13*	.30**	.51**	1					

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
18 L1EO	-.02	.07	-.05	.03	-.07	-.08	-.07	-.05	-.03	-.09	-.04	-.12	-.04	-.10	.44**	.41**	.66**	1				
19 L2CA	.12	.05	.12	.13*	.07	-.08	-.00	.15*	.12	.16*	.17**	.06	-.04	.03	.18**	.05	.19**	.25**	1			
20 L2CS	.12	.06	.06	.14*	.13	-.04	.09	.14*	.10	.12	.15*	.12	.01	.14*	-.03	.07	.06	.01	.59**	1		
21 L2OA	.10	.03	.06	.07	.08	-.09	.01	.15*	.10	.15*	.18**	.06	-.00	.05	.06	.05	.14*	.15*	.71**	.68**	1	
22 L2EO	.14*	.09	.09	.11	.05	-.09	.03	.19**	.14*	.15*	.20**	.05	.03	.05	.07	-.01	.06	.07	.67**	.66**	.76**	1

Note. *p < .05., **p < .01. MON = Monitoring; EVA = Evaluation; ORG = Organization; CON = Connection; CA = Contextual awareness; CS = Citation and synthesis; OA = Opinion and argument; EO = Expression and Organization.
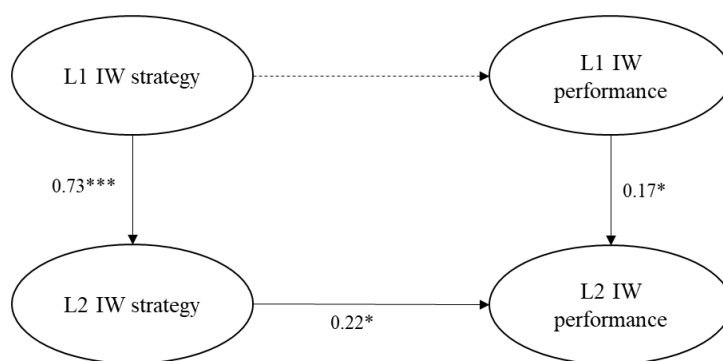
Figure 3. Relationships between the L1 and L2 IW strategy use and L1and L2 IW performance

6 Discussion

This study explored the associations between L1 and L2 IW strategy use and L1 and L2 IW performance from a cross-linguistic perspective. SEM results showed that students' strategic knowledge of L1 IW was positively associated with that in L2, and L1 IW performance was positively associated with L2 IW performance. More importantly, we also observed the indirect effect of L1 IW strategy use on L2 IW performance through L2 IW strategy use. These findings confirmed the Linguistic Interdependence Hypothesis in the context of source-based writing across L1 Chinese and L2 English.

6.1 The effect of strategy use on L1 and L2 IW performance

This section responded to RQ1, which focused on the effects of strategy use on IW performance in respective language contexts. What are the relationships between L1 Chinese strategy use and L1 Chinese IW performance and between L2 English strategy use and L2 English IW performance?This study suggested that students' L2 strategy use (including discourse synthesis, self-regulation and test-wiseness) significantly predicted their L2 IW performance. This finding was in line with previous empirical evidence that L2 writers' strategic knowledge was an essential contributor to their source-based writing outcomes (e.g., Abolhasani et al., 2022; Golparvar and Khafi, 2021; Yang and Plakans, 2012). Discourse synthesis has been recognised as a higher-level processing skill involving students' interactive synthesis of information from materials by selecting, connecting and organising (Golparvar and Khafi, 2021; Nelson and King, 2022), which could enhance students' L2 writing quality (Gebril and Plakans, 2013). Self-regulation, which primarily involves monitoring and evaluation, is also an important cognitive skill related to such a sophisticated activity as the IW task. When it comes to writing based on external sources, students need to regulate their cognitive resources across source reading and writing processes and might engage themselves in the more complex process of evaluating the materials, written texts and their mental ideas, consequently contributing to their writing success (Yang and Plakans, 2012; Segev-Miller, 2007; Shi et al., 2022). In addition, given the timed assessment condition, the test-wiseness

strategy (e.g., writing template, copying and patchwriting), to some extent, facilitates writing by providing students language support during writing (Golparvar and Khafi, 2021).

However, our study did not find a significant prediction of strategy use on IW performance in the L1 context, which is inconsistent with the assumption that writing strategies provide writers with the mental tools for composing (Harris et al., 2013; Hayes, 2012; Oxford, 1990). Still, this finding was supported by previous studies (Guo and Huang, 2020; Graham, 2017). It is plausible that in the L1 IW task, since students have already been proficient in L1 Chinese, they could compose a Chinese text in an automatic way, with less reliance on strategies (Kahng, 2014). This interpretation was also evidenced in the lower frequency of strategies in L1 IW, such as test-wiseness. For instance, while writing in L1, students' sufficient linguistic knowledge can support them to generate the text. In contrast, for L2 IW, due to the limited linguistic knowledge, students may be more likely to rely on strategies to support their writing, such as copying good sentences from the reading in writing and revising source contents (e.g., Keck, 2014; Gebril and Plakans, 2013). In addition, As other researchers have argued, there are other influential factors that may intertwine with the association between L1 writing strategy use and writing performance, such as gender, writing motivation, or the task prompt itself (e.g., Forbes, 2019; Graham et al., 2017; Shi et al., 2022). Further research is needed to explore these factors and gain a deeper understanding of the underlying mechanisms.

6.2 The cross-language influence of L1 IW strategy use and writing performance on L2 IW performance

This section primarily addressed the RQs 2-4, which focused on the cross-language influences between L1 and L2 IW tasks, namely the effect of L1 strategy use on L1 IW performance, L1 IW performance on L2 IW performance, and the effect of L1 strategy use on L2 IW performance, respectively. Based on our results, L1 IW strategy use, namely, self-regulation (monitoring and evaluation), discourse synthesis (organisation and connection) and test-wiseness, were significantly correlated with L2 IW strategy use. These findings not only confirmed Cummings's (1980, 2016) linguistic interdependence hypothesis in the IW context but also expanded the prior cross-language studies to Chinese-English comparison (van Weijen et al., 2019). To be specific, while Chinese and English were very linguistically different, students had the strategic knowledge and skills related to IW shared between the two languages. This confirmed the hypothesis that there exists an underlying proficiency common to multiple languages, facilitating the transfer of literacy-related skills (e.g., strategic skills) from one language to another (Cummins, 1980). Put in another way, regardless of different languages, such general cognitive/academic language skills as writing strategies (e.g., monitoring, evaluation, and organization) functioned as common resources to support multilingual learning. As Cumming et al. (1989) suggested, individuals showed an equivalent proportion of high-order problem-solving strategies, such as monitoring and evaluation, between the two languages.

In addition to the cross-language influence of the L1 strategy on the L2 strategy, this study suggested that students' IW expertise in L1 Chinese was related to L2 English IW skills. This finding lends empirical support to the argument that shared reading and writing skills between L1 and L2 provide students the possibility to transfer L1 skills into L2 (e.g., Forbes, 2020; Kim and Pae, 2021; Pae, 2019; van Weijen et al., 2018). Students' capacity for contextual awareness, citation and synthesis, language and organisation in L1 IW may be reused in the L2 IW context. As previous studies found, students might follow a similar textual organisation in L1 writing when they compose L2 text based on sources (e.g., van Weijen et al., 2019). Perhaps further textual analysis can provide us with an in-depth understanding of the transferability of language production skills between two languages.

More critically, another intriguing finding we generated in the present study is that students' L1 writing strategic knowledge could influence their L2 IW performance through the mediation of their L2 IW strategic knowledge. This suggests that the strategies used in L1 IW might be reshaped by students into the L2 context for task completion. As Rinnert et al. (2015) established, students' strategic knowledge in L1 was reorganised and reshaped to the L2 context and consequently influenced the L2 writing performance. Such an indirect effect between two languages is also supported by Cheong et al., 2019's evidence that students' multiple-text comprehension skills in Chinese (L1) could impact their English (L2) IW performance through their L2 multiple-text comprehension skills.

7. Conclusions

Our findings made significant theoretical contributions to the cross-language studies. Previous literature has documented the close correlations between L1 and L2 writing strategies (e.g., Guo and Huang, 2020; Schoonen et al., 2003). However, the majority of previous literature was conducted in the independent writing context, with less empirical research on the relationships between L1 and L2 writing strategies in the IW context. We found that students' writing strategies in L1 can positively impact their L2 writing strategy use, providing empirical support to the linguistic interdependence hypothesis in the IW context. Besides, we further confirmed that even if it comes to two very different languages, IW writing strategies were still common across Chinese and English, which supports previous researchers' assumptions (van Weijen et al., 2019). More importantly, this study further confirmed the hypothesis of L1-L2 transfer of literacy skills in the IW condition (Forbes, 2020), with the conclusion that L1 IW writing strategies can influence L2 IW performance through the L2 IW strategy use. To clarify, students' strategic knowledge in L1 can be reshaped or reused in the L2 IW context, consequently contributing to L2 IW writing performance.

These findings may have significant implications for language curricula. First, considering the significant prediction of L2 IW writing strategies on task performance in L2, it is essentially

necessary to incorporate strategy training in L2 writing instruction, especially the higher-order ones, such as monitoring, evaluation and discourse synthesis. For example, students should be educated to effectively control and evaluate their writing process and establish the connection among relevant information from materials. In addition, L1 IW strategy training may also be helpful due to the positive transfer of L1 strategy use to L2. Students' better awareness of L1 IW strategies can benefit their adaptive use of L1 strategic skills in the L2 IW context. Teachers thus can consider integrating L1 and L2 strategy training concurrently in writing class. To be specific, teachers can teach students how to effectively use strategies to compose a well-organized Chinese essay first and then require students to write an English essay in a similar task condition. Meanwhile, given the cross-language influence of L1 IW strategies and performance on L2 IW performance, schools and language teachers of Chinese and English are encouraged to design writing courses collaboratively (Forbes and Fisher, 2018; Forbes, 2020). Rather than separating L1 and L2, we should give strong consideration to students' multilingual repertoire during writing learning and teaching (Gentil, 2021; Rinnert and Kobayashi, 2016).

On the other hand, we have to acknowledge certain limitations in this research. First, our relatively small sample size may somewhat have undermined the effect size of the direct effect of L1 writing strategies on L2 integrated writing performance. Second, the in-depth qualitative analysis of students' IW processes and written products was necessary for explicit interpretations of the cross-language transfer across L1 Chinese IW and L2 English IW. Finally, given the argument by some scholars that transfer is dynamic and multidirectional (Forbes, 2020, p. 111; Mitits and Gavriilidou, 2016), future research should look at whether a reverse transfer also exists, for example, L2-to-L1 strategy transfer or from L2 writing strategies to L1 IW performance.

References

Abolhasani, Hamideh, Seyyed Ehsan Golparvar, and Mohammad Ali Robatjazi. 2022. Modelling the role of L2 writing anxiety in graph-based composing performance and strategy use. *Journal of Psycholinguistic Research*, *51*(2), 417-435. https://doi.org/10.1007/s10936-022-09858-8

Beare, Sophie. and Bourdages, Johanne. S. 2007. Skilled writers' generating strategies in L1 and L2: An exploratory study. In M. Torrance, L. van Waes, and D. Galbraith (Eds.), *Writing and Cognition* (pp. 151-161). Brill.

Berman, Robert. 1994. Learners' transfer of writing skills between languages. *TESL Canada Journal*, *12*(1), 29–46. https://doi.org/10.18806/tesl.v12i1.642

Cheong, Choo Mui., Zhu, Xinhua., Li, Guan Ying., and Wen, Hongbo. (2019). Effects of intertextual processing on L2 integrated writing. *Journal of Second Language Writing*, *44*, 63-75. https://doi.org/https://doi.org/10.1016/j.jslw.2019.03.004

Cohen, Andrew. D. 2013. Using test-wiseness strategy research in task development. In *The Companion to Language Assessment* (vol. 2, Approaches and Development, Pt 7: Assessment Development), 893–905.

Corbeil, Giselle. 2000. Exploring the effects of first-and second-language proficiency on summarizing in French as a second language. *Canadian Journal of Applied Linguistics*, *3*(1-2), 35–62.

Cumming, Alister, Conttia Lai, and Hyeyoon Cho. 2016. Students' writing from sources for academic purposes: A synthesis of recent research. *Journal of English for Academic Purposes*, *23*, 47–58. https://doi.org/10.1016/j.jeap.2016.06.002

Cumming, Alister, Jacques Rebuffot, and Monica Ledwell. 1989. Reading and summarizing challenging texts in first and second languages. *Reading and Writing*, *1*(3), 201–219. https://doi.org/10.1007/bf00377643

Cumming, Alister, Luxin Yang, Chenhui Qiu, Lian Zhang, Xiaoling Ji, Junju Wang, Ying Wang, *et al*. 2018. Students' practices and abilities for writing from sources in English at universities in China. *Journal of Second Language Writing*, *39*, 1–15. https://doi.org/10.1016/j.jslw.2017.11.001

Cumming, Alister, Robert Kantor, Kyoko Baba, Usman Erdosy, Keanre Eouanzoui, and Mark James. 2005. Differences in written discourse in independent and integrated prototype tasks for next generation TOEFL. *Assessing Writing*, *10*(1), 5-43. https://doi.org/10.1016/j.asw.2005.02.001

Cummins, Jim. 1980. The cross-lingual dimensions of language proficiency: Implications for bilingual education and the optimal age issue. *TESOL Quarterly*, *14*(2), 175–187. https://doi.org/10.2307/3586312

Cummins, Jim. 2016. Reflections on Cummins (1980), "The cross-lingual dimensions of language proficiency: Implications for bilingual education and the optimal age issue". *TESOL Quarterly*, *50*(4), 940–944. https://doi.org/10.2307/44984725

Flower, Linda, and John R. Hayes. 1981. A cognitive process theory of writing. *College Composition and Communication*, *32*(4), 365–387. https://doi.org/10.2307/356600

Forbes, K. 2019. The role of individual differences in the development and transfer of writing strategies between foreign and first language classrooms. *Research Papers in Education*, *34*(4), 445–464. https://doi.org/10.1080/02671522.2018.1452963

Forbes, Karen, and Linda Fisher. 2018. Strategy development and cross-linguistic transfer in foreign and first language writing. *Applied Linguistics Review*, *11*(2), 311–339. https://doi.org/doi:10.1515/applirev-2018-0008

Forbes, Karen. (2020). *Cross-Linguistic Transfer of Writing Strategies: Interactions Between Foreign Language and First Language Classrooms*. Multilingual Matters. http://ebookcentral.proquest.com/lib/hkied-ebooks/detail.action?docID=6357537

Gebril, Atta., and Plakans, Lia. 2013. Toward a transparent construct of reading-to-write tasks: The interface between discourse features and proficiency. *Language Assessment Quarterly*, *10*(1), 9-27. https://doi.org/10.1080/15434303.2011.64204

Gentil, Guillaume. 2021. Multicompetence and L2 writing. In Rosa M. Manchón and Charlene. Polio (Eds.), *The Routledge Handbook of Second Language Acquisition and Writing* (pp. 109–122). Routledge. https://doi.org/10.4324/9780429199691-14

Graham, Steve, Sharlene A. Kiuhara, Karen R. Harris, and Evan J. Fishman. 2017. The relationship among strategic writing behavior, writing motivation, and writing performance with young, developing writers. *The Elementary School Journal*, *118*(1), 82–104. https://doi.org/10.1086/693009

Guo, Xiaoqian., and Huang, Li.-Shih. 2020. Are L1 and L2 strategies transferable? An exploration of the L1 and L2 writing strategies of Chinese graduate students. *The Language Learning Journal*, *48*(6), 715–737. https://doi.org/10.1080/09571736.2018.1435710

Harris, Karen R., Steve Graham, Barbara Friedlander, and Leslie Laud. 2013. Bring powerful writing strategies into your classroom! Why and how. *The Reading Teacher*, *66*(7), 538-542. https://doi.org/10.1002/trtr.1156

Hayes, John. R. 2012. Modeling and remodeling writing. *Written Communication*, *29*(3), 369–388. https://doi.org/10.1177/0741088312451260

Johnson, Mark. D. 2020. Planning in L1 and L2 writing: Working memory, process, and product. *Language Teaching*, *53*(4), 433–445. https://doi.org/10.1017/s0261444820000191

Keck, Casey. 2006. The use of paraphrase in summary writing: A comparison of L1 and L2 writers. *Journal of Second Language Writing*, *15*(4), 261–278. https://doi.org/10.1016/j.jslw.2006.09.006

Keck, Casey. 2014. Copying, paraphrasing, and academic writing development: A re-examination of L1 and L2 summarization practices. *Journal of Second Language Writing*, *25*, 4–22. https://doi.org/10.1016/j.jslw.2014.05.005

Kim, Kyung. Ja., and Pae, Tae.-Il. 2021. Examining the simultaneous effects of L1 writing, L2 reading, L2 proficiency, and affective factors on different task types of L2 writing. *Discourse Processes*, *58*(7), 662–680. https://doi.org/10.1080/0163853X.2021.1872989

Kline, Rex. B. 2015. *Principles and practice of structural equation modeling* (4th ed). Guildford Press.

Knoch, Ute. and Sitajalabhorn, Woranon. (2013). A closer look at integrated writing tasks: Towards a more focussed definition for assessment purposes. *Assessing Writing*, *18*(4), 300-308. https://doi.org/10.1016/j.asw.2013.09.003

Kubota, Ryuko. 1998. An investigation of L1–L2 transfer in writing among Japanese university students: Implications for contrastive rhetoric. *Journal of Second Language Writing*, *7*(1), 69–100. https://doi.org/10.1016/s1060-3743(98)90006-6

McDonough, Steven. H. 1999. Learner strategies. *Language Teaching*, *32*(1), 1-18. https://doi.org/10.1017/s0261444800013574

Muthén, Linda K., and Bengt O. Muthén. 2017. *Mplus User's Guide: Statistical Analysis with Latent Variables, User's Guide*. Muthén and Muthén.

Nelson, Nancy., and King, James. R. 2022. Discourse synthesis: Textual transformations in writing from sources. *Reading and Writing*. https://doi.org/10.1007/s11145-021-10243-5

Oxford, Rebecca. L. 1990. *Language Learning Strategies* (Vol. 3). Newbury House Publisher.

Pae, Tae.-II. 2019. A simultaneous analysis of relations between L1 and L2 skills in reading and writing. *Reading Research Quarterly*, *54*(1), 109–124. https://doi.org/10.1002/rrq.216

Pennington, Martha C., and Sufumi So. 1993. Comparing writing process and product across two languages: A study of 6 Singaporean university student writers. *Journal of Second Language Writing*, *2*(1), 41–63. https://doi.org/10.1016/10603743(93)90005-N

Penny, Jim., Johnson, Robert. L., and Gordon, Belita. 2000. The effect of rating augmentation on inter-rater reliability. *Assessing Writing*, *7*(2), 143-164. https://doi.org/10.1016/s1075-2935(00)00012-x

Plakans, Lia. 2008. Comparing composing processes in writing-only and reading-to-write test tasks. *Assessing Writing*, *13*(2), 111-129. https://doi.org/https://doi.org/10.1016/j.asw.2008.07.001

Plakans, Lia. 2009. The role of reading strategies in integrated L2 writing tasks. *Journal of English for Academic Purposes*, *8*(4), 252-266. https://doi.org/https://doi.org/10.1016/j.jeap.2009.05.001

Rinnert, Carol., and Kobayashi, Hiroe. 2016. Multicompetence and multilingual writing. In M. Manchón Rosa and Matsuda Paul Kei (Eds.), *Handbook of Second and Foreign Language Writing* (pp. 365-386). De Gruyter Mouton. https://doi.org/doi:10.1515/9781614511335-020

Rinnert, Carol., Kobayashi, Hiroe., and Katayama, Akemi. 2015. Argumentation text construction by Japanese as a foreign language writers: A dynamic view of transfer. *The Modern Language Journal*, *99*(2), 213-245. https://doi.org/10.1111/modl.12210

Sasaki, Miyuki., and Hirose, Keiko. 1996. Explanatory variables for EFL students' expository writing. *Language Learning*, *46*(1), 137–168. https://doi.org/10.1111/j.1467-1770.1996.tb00643.x

Schoonen, Rob, Amos Van Gelderen, Kees De Glopper, Jan Hulstijn, Annegien Simis, Patrick Snellings, and Marie Stevenson. 2003. First language and second language writing: The role of linguistic knowledge, speed of processing, and metacognitive knowledge. *Language Learning*, *53*(1), 165-202. https://doi.org/10.1111/1467-9922.00213

Spivey, Nancy. Nelson. 1997. *The constructivist metaphor: Reading, writing and the making of meaning*. Brill.

Spivey, Nancy. Nelson., and King, J. R. 1989. Readers as writers composing from sources. *Reading Research Quarterly*, *24*(1), 7–26. http://www.jstor.org/stable/748008

Stein, Victoria. 1990. Exploring the cognition of reading-to-write. In Linda. Flower, Victoria. Stein, John. Ackerman, Margaret. J. Kantz, Kathleen. McCormick, and Wayne. C. Peck (Eds.), *Reading-to-write: Exploring a Cognitive and Social Process* (pp. 119–143). Oxford University Press.

Van Ockenburg, Liselore., Van Weijen, Daphne., and Rijlaarsdam, Gert. 2019. Learning to write synthesis texts in secondary education: A review of intervention studies. *Journal of Writing Research*, *10*(3), 401-428. https://doi.org/10.17239/jowr-2019.10.03.01

Van Weijen, Daphne., Rijlaarsdam, Gert., and Van Den Bergh, Huub. 2019. Source use and argumentation behavior in L1 and L2 writing: A within-writer comparison. *Reading and Writing*, *32*(6), 1635-1655. https://doi.org/10.1007/s11145-018-9842-9

Van Weijen, Daphne., Van Den Bergh, Huub., Rijlaarsdam, Gert., and Sanders, Ted. 2009. L1 use during L2 writing: An empirical study of a complex phenomenon. *Journal of Second Language Writing*, *18*(4), 235-250. https://doi.org/https://doi.org/10.1016/j.jslw.2009.06.003

Wang, Chun. Yan., Cai, Yu. Yang., Zhao, Min., and You, Xiao. Qiong. 2021. Disentangling the relation between motivation regulations strategies and writing performance: Island Ridge Curve angle. [Original article published in Chinese in 2020: 动机调控策略与写作成绩的关系解构: "岛脊曲线"视角] *Foreign Language World* (外语界), 3, 46–54, 72.

Wang, Wenyu., and Wen, Qiufang. 2002. L1 use in the L2 composing process: An exploratory study of 16 Chinese EFL writers. *Journal of Second Language Writing*, *11*(3), 225-246. https://doi.org/10.1016/s1060-3743(02)00084-x

Wei, Xing., Zhang, Lawrence. Jun., and Zhang, Weixia. 2020. Associations of L1-to-L2 rhetorical transfer with L2 writers' perception of L2 writing difficulty and L2 writing proficiency. *Journal of English for Academic Purposes*, *47*, 100907. https://doi.org/10.1016/j.jeap.2020.100907

Whalen, Karen., and Menard, Nathan. 1995. L1 and L2 writers' strategic and linguistic knowledge: A model of multiple-level discourse processing. *Language Learning*, *45*(3), 381-418.

Xu, Wandong. and Zhu, Xinhua. (2024). Examining metacognitive strategy use in L1 and L2 task-situated writing: effects, transferability, and cross-language facilitation. *Metacognition Learning*. https://doi.org/10.1007/s11409-024-09387-w

Yang, Hui. Chung. 2014. Toward a model of strategies and summary writing performance. *Language Assessment Quarterly*, *11*(4), 403-431. https://doi.org/10.1080/15434303.2014.957381

Yang, Hui. Chung., and Plakans, Lia. 2012. Second language writers' strategy use and performance on an integrated reading-listening-writing task. *TESOL Quarterly*, *46*(1), 80-103.

Yu, Guoxing. 2008. Reading to summarize in English and Chinese: A tale of two languages? *Language Testing*, *25*(4), 521-551. https://doi.org/10.1177/0265532208094275

Zhang, Cui. 2013. Effect of instruction on ESL students' synthesis writing. *Journal of Second Language Writing*, *22*(1), 51-67. https://doi.org/10.1016/j.jslw.2012.12.001

Zhao, Pengfei., Zhu, Xinhua., Yao, Yuan., and Liao, Xian. (2023). Ideal L2 self, enjoyment, and strategy use in L2 integrated writing: A self-regulatory learning perspective. *System*, *115*, 103033. https://doi.org/https://doi.org/10.1016/j.system.2023.103033

Zhu, X., Li, X., Yu, G., Cheong, C. M., & Liao, X. (2016). Exploring the relationships between independent listening and listening-reading-writing tasks in Chinese language testing: Toward a better understanding of the construct underlying integrated writing tasks. *Language Assessment Quarterly*, *13*(3), 167-185. https://doi.org/10.1080/15434303.2016.1210609

Zhu, Xinhua., Li, Guan Ying., Cheong, Choo Mui., Yu, Guoxing., & Liao, Xian. (2020). Secondary school students' discourse synthesis performance on Chinese (L1) and English (L2) integrated writing assessments. *Reading and Writing*, *34*(1), 49-78. https://doi.org/10.1007/s11145-020-10065-x

Conflict of interest statement

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Appendix A

Task Prompts for Chinese and English Integrated Writing Tasks

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1. Chinese Integrated Writing Task

A left-behind girl from Hunan Province, Zhong Fangrong, sparked a heated discussion among netizens due to her high score in the college entrance examination and her decision to enrol in the archaeology program at Peking University. When choosing a major in college, is personal interest more important or job prospects? What is your opinion on this matter and why?

Specific requirements:

1) Summarize the different viewpoints on "***choosing a college major***" from the following four passages, and provide your own viewpoint based on the summary;

2) Select some relevant information from the passages as supportive details (or connect your own experience as supplementary information if necessary) for your viewpoint, and make interpretation, explanation and evaluation of these supportive details;

3) Create your own title, and finish the task within one hour with no less than 600 Chinese characters.

2. English Integrated Writing Task

The growing use of foreign words is a threat to our mother tongue or a promotion of culture. What is your opinion on this matter and why?

Specific requirements:

4) Summarize the different viewpoints on "***the use of foreign words***" from the following four passages, and provide your own viewpoint based on the summary;

5) Select some relevant information from the passages as supportive details (or connect your own experience as supplementary information if necessary) for your viewpoint, and make interpretation, explanation and evaluation of these supportive details;

6) Create your own title, and finish the task within one hour with no less than 200 words.

Appendix B

Strategy Inventory for English Integrated Writing

Directions: Read each statement and indicate how often you used each strategy when writing your essay. Check the appropriate box: 1(very rarely), 2 (rarely), 3 (occasionally), 4 (often), 5 (very often).

A. Pre-writing

1. I reread the task requirements carefully.
2. I thought about the type of essay I wanted to write.
3. I tried to summarize overall ideas from the whole reading passage in my mind.
4. I tried to understand the relationship between the ideas of the reading passage.
5. I made a writing plan (e.g., outlines, notes, keywords).
6. I wrote down main ideas and important points from the reading passage.
7. I searched for connections among sentences.
8. I tried to understand the content according to how information is organized in each paragraph.
9. I tried to understand the organization of the reading passage.
10. I searched for connections among paragraphs.
11. I planned to copy good sentences from the reading in my writing.

B. In-writing

12. I double-checked to see if my writing met the task requirements.
13. I reread the reading passage again to look for main ideas.
14. I wrote some phrases based on a writing template I had memorized before the test.
15. I copied the sentences from the reading passage and revised them.
16. I thought about mentioning the material sources in my essay.
17. I reread what I had written to see if my writing met the task requirements.
18. I tried to write about my knowledge or my own experiences in the essay.
19. I used different words or phrases to describe ideas from the reading passage.
20. I reread what I had written to see if I was using correct spelling and grammar.
21. I revised the sentences to make my writing clearer.
22. I thought about a word, phrase, or sentence before I wrote it down.
23. I first wrote out a writing template I had memorized before and filled in some ideas from the reading passage.

C. Post-writing

24. I checked if I used examples to support my main ideas.
25. I reread my essay and changed the content that didn't express what I meant.
26. I added new points based on the reading passage.
27. I reread my essay and made sure my expression was correct.

1   28.   I made changes in phrases to ensure I didn't copy the exact phrases.