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Abstract

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Keywords	intertextual processing; discourse synthesis; integrated writing; cross-language transfer
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Highlights

Students' Chinese and English integrated writing performance was examined.

Discourse synthesis strategy use was a significant predictor of integrated writing.

Cross-linguistic transfer of integrated writing was observed.

Intertextual processing on L2 integrated writing

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Effects of intertextual processing on L2 integrated writing

Abstract

This study explored the effects of intertextual processing on integrated writing. A strategy inventory for discourse synthesis, an intertextual inference verification task examining multiple-text comprehension in Chinese (the students' first language, L1) and English (their second language, L2) and integrated writing tasks in both L1 and L2 were administered to students in four secondary schools in Hong Kong. The results of structural equation modelling analyses showed that discourse synthesis strategies and multiple-text comprehension were significant predictors of integrated writing performance in both L1 and L2 settings. Transferability of integrated writing competence and multiple-text comprehension between the L1 and L2 was also observed, substantiating the significance of L1 integrated writing and multiple-text comprehension to the development of L2 integrated writing. This study thus helps to establish a causal relationship between discourse synthesis, multiple-text comprehension, and integrated writing, an area that has been neglected in prior research. Several theoretical and pedagogical implications are discussed.

Keywords: intertextual processing; discourse synthesis; multiple-text comprehension; integrated writing; cross-language transfer

Introduction

The twenty-first century has been characterized by a paradigm shift towards information-based knowledge economies (Griffin, Esther, & McGaw, 2012), leading to high demand for information literacy on the learners, particularly in terms of intertextual processing (Barzilai, Zohar, & Mor-Hagani, 2018). Therefore, schools are placing emphasis for students to not only use different language skills simultaneously, but also work effectively with information from multiple sources. Integrated writing involving the synergy of different language modalities and the integration of multiple sources of information in new written products has been considered a key indicator of information literacy and attracted considerable attention in the field of language research over the last several decades (Cumming, Lai, & Cho, 2016; Cumming et al., 2018; Grabe & Zhang, 2013).

In Hong Kong, integrated writing has been incorporated into the curriculum and assessment frameworks of Chinese Language (students' first language, L1) and English Language (students' second language, L2) for over a decade (Curriculum Development Council [CDC] & Hong Kong Examinations and Assessment Authority [HKEAA], 2007a, 2007b). This incorporation ties in with the biliteracy (Chinese and English) and trilingualism (Cantonese, Putonghua, and English) language policy (Education Bureau, 2010) and highlights the centrality of intertextual processing as one of the key competencies that students need to develop at the secondary school level (CDC, 2017). However, empirical studies examining students' writing performance are relatively sparse, few exploring the constructs of Chinese integrated writing competence and the relationship between integrated writing and other language skills, such as independent reading and listening skills (Cheong, Zhu, & Liao, 2018; Zhu, Li, Yu, Cheong, & Liao, 2016). Given that one of the central aims of the local secondary school curriculum is to nurture bi-literate learners capable of writing from multiple sources, an examination of students' integrated writing performance in both L1

and L2 settings and the factors associated with integrated writing could advance our understanding of this multifaceted construct and offer insights into instructional practices.

Literature review

Intertextual processing in integrated writing

Integrated writing involves complex information processing, not only intra-textually but also inter-textually, as writers need to coordinate information from divergent sources that may contain differing or even competing viewpoints and develop them into an integral argument (Grabe, 2001; Segev-Miller, 2007). This composing process imposes very high cognitive demands on learners in terms of discourse synthesis and multiple-text comprehension.

1) Discourse synthesis skills

The integration of multiple-source information entails a hybrid cognitive operation of comprehending and constructing (Segev-Miller, 2007). Spivey and King (1989) highlighted organizing, selecting, and connecting as three essential operations in the constructive processes. When writing from sources, writers form organizational patterns of the texts that they are reading. They also strategically select information by distinguishing key ideas from the less important ones in light of their discourse goals. Connecting is at the core of discourse synthesis. Writers must connect ideas from source texts and associate source information with their prior knowledge to form integral unities. Operating in concert, the three discourse synthesis strategies have been proven a critical construct accounting for differences in integrated writing performance.

Using the discourse synthesis framework, researchers have established the association between writers' use of source texts in the global aspects and the overall writing quality. Plakans and Gebril (2013) noted the significant role of discourse synthesis, finding that 55% of the variance in integrated writing scores was explained by the source use variables. Writers

with higher L2 proficiency engaged in more discourse synthesis processes, whereas the low-performing writers struggled with word-level comprehension (Plakans, 2009a). The proficient writers employed appropriate source use practices such as paraphrasing or summarizing (Plakans & Gebril, 2013), and maneuvered information in the global aspects such as text structure and the main ideas of the source texts (Plakans, 2009b). Therefore, better integration of reading and writing was observed, and verbatim source use was reduced greatly (Yang & Plakans, 2012). With limited linguistic resources, the less proficient writers either only incorporated the source texts into less than 10% of their writing (Plakans, 2009a), or copied large sections from the source texts directly (Weigle & Parker, 2012). Prior research has also explored the instructional potential of discourse synthesis in the writing classroom. In a recent intervention study, Barzilai and Ka'adan (2017) found that explicit instructional strategies for organizing competing claims and reasons, establishing connections between sources and identifying source origins could lead to significant improvements in integration performance in argumentative writing tasks. In brief, discourse synthesis has taken various forms in previous studies, including source use features, writing strategies, and instructional approaches. The findings of these studies suggest that the mastery of discourse synthesis skills significantly affects the quality of integrated writing, and it is influenced by the writers' language proficiency.

2) Multiple-text comprehension

Another prerequisite for source-based writing is the ability to comprehend information from multiple sources, and make inferences between and across documents (Grabe, 2001; Karimi, 2017), which has been regarded as an essential skill in academic and everyday life (Anmarkrud, Bråten, & Strømsø, 2014). When writing from multiple sources, students must form a coherent mental representation of the materials and make inferences between and across documents presenting diverse or even competing perspectives (Grabe, 2001; Karimi,

2017). Multiple-text comprehension is more resource-demanding and requires more strategic processing than single-text comprehension (Karimi, 2015). Bråten and Strømsø (2011) found that the employment of deep-level cross-text elaboration contributed significantly to better multiple-text comprehension, as compared to the adoption of a superficial information-accumulation approach. The findings reported by Kobayashi (2009) also supported the significant contribution of strategy use to multiple-text comprehension, as readers who took summary notes while reading multiple texts exhibited better understanding of the relations between the source texts.

Previous studies have also shown that inferential reasoning, which is the ability to build an argument upon an integrative understanding of source texts, is a valid indicator of argumentative writing performance. In order to convince readers of the reliability of their arguments, writers may appeal to external renowned authority, personal experience or the source texts presented to them. Bråten, Ferguson, Strømsø, and Anmarkrud (2014) proved that justification by source texts is a strong unique predictor of argumentative reasoning, as students who are able to anchor their arguments when integrating source information are more likely to outperform their peers who use only external authority or personal experience to justify their viewpoints. Anmarkrud et al. (2014) made similar findings, as their participants reported significant correlations between the use of cross-document linking strategies (e.g., the formation of cross-document connections), explicit source citations, and the integration of sources in argumentative essays.

In summary, the centrality of discourse synthesis skills has been well recognized in prior research, and it has been established that the ability to work with multiple-source information is predictive of the quality of written production. Thus, both discourse synthesis and multiple-text comprehension are critical operations in integrated writing. However, research on the relationship between the two factors is relatively scant. Examination of this relationship will

contribute to a more comprehensive understanding of the factors that account for differences in integrated writing performance, thus providing insights into effective integrated writing instruction.

Cross-language transfer in integrated writing

Besides investigating the use of intertextual processing strategies on integrated writing, researchers are also concerned with the constraints of limited linguistic abilities on L2 writing, which could result in excessive source use and disintegrated content. Cumming et al. (2016) opined that within-subject comparisons of L1 and L2 integrated writing will not only "disentangle the differential effects of language proficiency and the ability to write from sources" (p. 53), but also shed light on the potential for the cross-language transfer of skills and knowledge. Related to Cumming's et al. (2016) recommendation, Cummins' (1979) Linguistic Interdependence Hypothesis proposed that there is a "common underlying proficiency construct" (Cummins, 2016) shared between L1 and L2 literacies. The existence of this construct allows for the "transfer of concepts, skills, and learning strategies across languages" (Cummins, 2016, p. 940), under the conditions when L1 competence is well-developed and L2 exposure is adequate. Taking a linguistic perspective, Ringbom (2007) focused on similarities between the learner's native language and the target language, and opined that the facilitating effect of the L1 on L2 depends on how well the learner establishes the relationship between the two languages and draws upon these similarities. Comparing Finnish and Swedish students writing English as L2, Ringbom (1987) found that the less English proficient Finnish students avoided the use of articles and prepositions, while the advanced Finnish students progressed well and caught up with their Swedish counterparts, indicating that L2 exposure is critical to L1-L2 transfer. Both Cummins (1979) and Ringbom (2007) have indicated that while examining L1-L2 within-subject comparison, we need to

take the extent of similarities between the two languages, the L1 competence and L2 proficiency level into consideration.

1) L1 and L2 transfer of strategy use in written composition

Although we observed limited within-subject comparison in investigating the effect of L1 and L2 writers' behavior on L2 integrated writing performance, previous works have confirmed cross-language transfer for summary writing (Cumming, Rebuffot, & Ledwell, 1989; Yu, 2008, 2009). Cumming et al. (1989) found similar thinking processes in summarizing in L1 (English) and L2 (French), and that the strategies used were closely related to L1 literacy and correlated with the qualities of both English and French summaries. More recently, van Weijen, Rijlaarsdam, and van Den Bergh's (2018) study on undergraduates' argumentative essay writing based on multiple source materials found that although L1 (Dutch) and L2 (English) writing performance are positively correlated, there is no clear indication that the writers' behavior affects L2 writing, as the source use behaviors and argumentative behaviors differ between the two languages. Whereas the above works researched on languages with similar orthographic systems, Yu (2008, 2009) found similarities in both summarization processes and products between Chinese (L1) and English (L2), which are from different language families. The ability to use a source text has significant and relatively larger effects than language ability on summarization performance, especially on the Chinese summaries.

Given the limited studies on L1 and L2 transfer in integrated writing, we expanded our literature search to independent writing. Whalen and Ménard (1995) found that L1 (English) and L2 (French) processes were similar during planning, but less so during evaluation and revision in writing. When using evaluating and revising strategies, L2 writers tended to attend to local-level aspects more, such as morphosyntax or morphemic considerations. Schoonen et al. (2003) found that L1 (Dutch) writing proficiency predicted L2 (English) writing, but also

observed L2 writing proficiency was subject to linguistic knowledge and fluency in lexical retrieval, whereas L1 writing exhibited evident effect of metacognitive knowledge. Albrechtsen (2008) expanded the comparison of L1 (Danish) and L2 (English) writing across various grade levels, and found that while the university students were able to apply the writing skills demonstrated in L1 to L2 writing, their younger counterparts were unable to do so. Their findings supported the hypothesis that in order for cross-linguistic transfer to take place, the learners must attain a threshold level of linguistic competence (Cummins, 1979). In addition, Guo and Huang (2018) found a very high degree of similarity of strategy use between L1 (Chinese) and L2 (English) writing by a group of Chinese graduate students. The cognitive strategies were identified as the most used category and the social strategies as the least used. However, Guo and Huang (2018) did not find a significant relationship between writing strategy use and writing performance in either L1 or L2.

2) L1 and L2 transfer of reading comprehension

As L2 writers meld information across multiple texts during integrated writing, their intertextual comprehension is assumed to be related to the performance of the task. Reading comprehension studies using within-subject L1 and L2 comparison may shed light on the present study. Reviewing work done on language-minority children learning English in the United States and Europe, Dressler and Kamil (2006) concluded that there is substantial evidence of the cross-language transfer of reading comprehension ability and strategy use in bilinguals. Yamashita (2002) reached the same conclusion, as she found that L2 (English) readers with a higher L1 (Japanese) reading ability achieved better L2 reading proficiency. In contrast, Tsai, Ernst, and Talley's (2010) study found that the effect of L2 language proficiency played a larger role than L1 reading ability. Comparing across the variables, Tsai et al. (2010) further suggested that participants tended to transfer their L1 knowledge more at the word than text level, and the relatively small effect was weakened significantly during the

processing of reading comprehension at the global level. As Ringbom (2007) pointed out, the similarities between incoming information and existing knowledge structures during comprehension are more overt and concrete to the learners than the similarities between existing knowledge structures during production. We thus assume that similarities between the L1 and the L2 play an important role in comprehension, which in our case, is multiple-text comprehension.

The majority of the above studies are inclined towards the existence of cross-language transfer, more so for task performance than strategy use (e.g., Cumming et al., 1989). Notably, there is support for the L1 and L2 interdependencies hypothesis even across languages with different orthographic systems (e.g., Yu, 2008). Given that nurturing information-literate learners in a bilingual context is central to the local secondary school curriculum, a further exploration of the effects of intertextual processing manifested in discourse synthesis and multiple-text comprehension in both L1 and L2 settings could advance our understanding of the multifaceted nature of integrated writing and offer insights into instructional and assessment practices.

The present study

The present study used a structural equation modelling (SEM) approach to explore the effects of discourse synthesis strategy use and multiple text comprehension on integrated writing performance. It also examined cross-linguistic transfer from L1 to L2. Accordingly, the following research questions guided this study.

1. What are the effects of discourse synthesis strategy use on L1 and L2 integrated writing performance?

2. What are the effects of multiple-text comprehension on L1 and L2 integrated writing performance?

3. Is there any cross-linguistic effect from the L1 to L2 on multiple-text comprehension
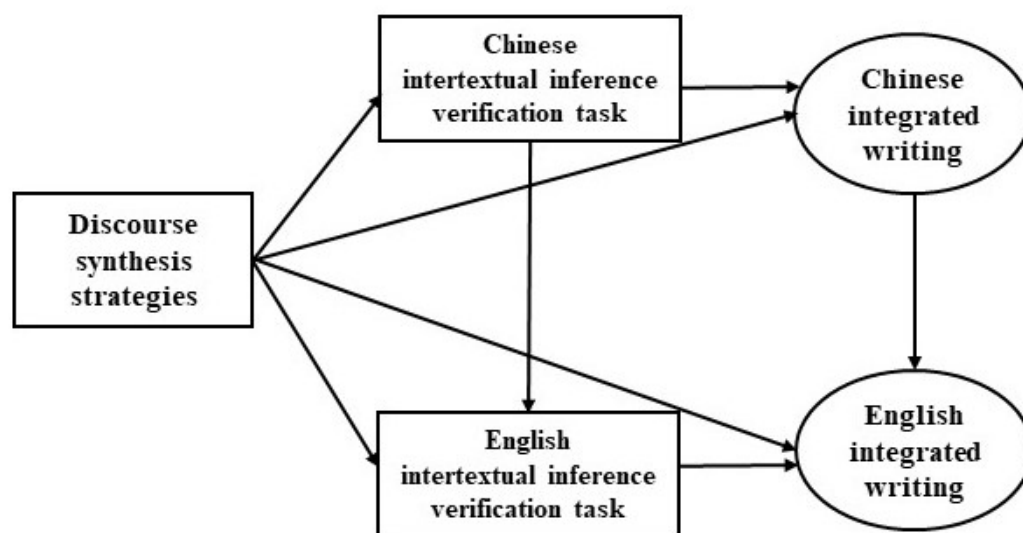
and integrated writing?

Figure 1. The hypothesized model

Figure 1 demonstrates the hypothetical model that we proposed based on the

aforementioned theoretical grounds. The rectangles represent the observed variables (i.e.,

discourse synthesis strategies, Chinese intertextual inference verification task, and English

intertextual inference verification task) and the circles represent the latent variables (i.e.,

Chinese integrated writing and English integrated writing). The hypothetical causal

relationship between two variables is represented by a single-headed arrow.

Based on the literature reviewed, we hypothesized that discourse synthesis strategy use

would have a direct effect on the L1 and L2 integrated writing performance. Multiple-text

comprehension manifested in intertextual inference verification tasks was also expected to

affect integrated writing performance directly. Furthermore, the use of discourse synthesis

strategies would mobilize better intertextual comprehension, which would lead to improved

writing performance. It was also assumed that cross-linguistic transfer from L1 to L2 would

exist between intertextual inference verification variables and between integrated writing

variables. Additionally, Chinese intertextual inference verification would affect English

integrated writing by means of English intertextual inference verification and Chinese integrated writing.

Method

In the present study, we hypothesized a causal relationship between the use of discourse synthesis strategies, multiple-text comprehension, and integrated writing, and we tested the hypothetical causal relationships using SEM.

1) Participants

The study sample consisted of 415 secondary four students from four secondary schools in Hong Kong. The gender distribution was 192 females and 223 males, with an average age of 15.82 ($SD = 0.76$). According to the latest government statistics (Education Bureau, 2017), there are 506 secondary day schools in Hong Kong, with aided schools constituting the largest proportion (359 schools, 70.95%), followed by direct subsidy scheme schools (61 schools, 12.06%). The other 86 schools (17.00%) are government and private schools.[1] Three aided schools and one direct subsidy scheme school participated in the study, forming a sample that was proportionally similar to all of Hong Kong in terms of school types. However, the participants were recruited via opportunistic sampling, and so the study sample cannot be considered genuinely representative.

2) Instruments

A set of integrated writing tasks and scoring rubrics were used to measure and evaluate students' integrated writing performance in both L1 and L2 settings. A strategy inventory for integrated writing (Yang & Plakans, 2012) was adopted to examine the use of discourse

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[1] There are mainly four types of secondary schools in Hong Kong: government schools, aided schools, direct subsidy schools, and private schools. Government schools are funded and run by the local education authority. Aided schools, although fully sponsored by the government, are run by independent management committees. Neither government schools nor aided schools charge tuition fees. Direct subsidy schools, which receive funding from the government in accordance with the Direct Subsidy Scheme, are allowed greater autonomy in terms of curriculum plans, tuition fees, and admission requirements. Some private schools are subsidized by the government, but most are self-financed and run by individual educational organizations or investors.

synthesis strategies in integrated writing. A set of inter-textual inference verification tasks was utilized to measure students' ability to draw valid inferences by synthesizing information from multiple materials. These four instruments are described in detail below.

Integrated writing tasks. We developed a Chinese integrated writing task (CIW) and an English integrated writing task (EIW) to measure students' integrated writing performance based on the Four Traits of Integrated Writing Competence developed by Zhu (2005, 2015), which was originally a research project commissioned by the Hong Kong Education and Manpower Bureau. This four-trait framework was first used in 2007 to assess Chinese integrated writing for the Hong Kong Certificate of Education Examination[2] (HKEAA, 2005), and was later adapted for the Hong Kong Diploma of Secondary Education Examination (HKDSE)[3] Chinese Language Paper 3: Listening and integrated skills (HKEAA, 2017). Under the current HKDSE assessment framework, Paper 3 (Listening and integrated skills) is a compulsory part of Chinese and English assessment, and therefore local students are familiar with source-based writing tasks in both languages.

We designed the CIW and EIW in line with the format of the current HKDSE Paper 3 (Listening and integrated skills). To ensure the equivalence of the two tasks, we chose writing topics that are both debatable and familiar to students (details to be provided below). Students were provided with the same number of source materials in both tasks. In each task, the source materials consisted of six reading passages, an audio recording of a discussion forum, and a writing prompt (Appendix 1). Local teachers and experts who were well acquainted

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[2] The Hong Kong Certificate of Education Examination (HKCEE) was a public examination administered from 1978 to 2011, taken by students at the end of the five-year secondary school education (i.e., Grade 11). It was followed by the Hong Kong Advanced Level Examination (HKALE), a university-entrance examination taken at the end of Grade 13.

[3] The Hong Kong Diploma of Secondary Education Examination (HKDSE) has been administered since 2012. It is the prevailing university-entrance examination taken by students at the end of the six-year secondary school education (i.e., Grade 12).

with Hong Kong's education and assessment landscape were consulted beforehand to ensure the equivalence, clarity, and appropriateness of the two writing tasks.

The 415 students participating in the present study completed both the CIW and EIW. The students were required to write a speech summarizing the different perspectives presented in the readings and the recording and to express personal opinions on the given topic. The topic of the CIW was filial piety, which symbolizes shared cultural norms in Chinese society, but has become controversial. The controversy surrounding filial piety was portrayed in the listening material. The six written texts comprised (1) a poster outlining Chinese culture week events related to filial piety and specifying task requirements, (2) an essay adapted from a commentary about over-parenting, (3) a pie chart displaying the survey results of students' perceptions of filial piety, (4) two ancient Chinese stories illustrating filial behavior, (5) two excerpts from the Analects of Confucius regarding filial piety, and (6) quotations from a discussion forum providing various views on filial piety.

The topic of the English task was Cantonese opera, which was added to UNESCO's Intangible Cultural Heritage of Humanity list in 2009. Although Cantonese opera has traditionally been one of Hong Kong's most valued cultural assets, it is currently experiencing a decline in popularity, particularly among the younger generation. A discussion of its position in modern society was documented in the listening material. The six reading passages comprised (1) an email from the teacher inviting students to give a speech about Cantonese opera at the school assembly, with requirements of the speech provided, (2) a pie chart showing the survey results of the popularity of Cantonese opera at the school, (3) a webpage introducing the techniques and types of plays involved in Cantonese opera, (4) a news report regarding the government's approach to the preservation and promotion of Cantonese opera, (5) quotations demonstrating various views on Cantonese opera, and (6) a short passage introducing Mr. Law Ka-ying, one of the most recognizable figures in

Cantonese opera. We deliberately chose two debatable topics and materials that demonstrated similar, complementary, differing and even conflicting views on the topics to examine students' ability to synthesize information from multiple sources.

Integrated writing scoring rubrics. To evaluate students' integrated writing performance, we adapted the analytic integrated writing scoring rubrics (Appendix 2) from Zhu (2005, 2015), in which integrated writing performance was assessed through the following four dimensions: (1) contextual awareness, (2) citations and synthesis, (3) opinion and argument, and (4) written expression and organization. This four-trait marking scheme has been applied to the current HKDSE (HKEAA, 2017), and has been used in prior research to evaluate students' integrated writing performance (Cheong et al., 2018; Zhu, 2015; Zhu et al., 2016).

Intertextual inference verification task (IIVT). Intertextual inference verification tasks have been used in prior research to measure multiple-text comprehension competence (Braasch, Bråten, Strømsø, & Anmarkrud, 2014; Karimi, 2015, 2017). We developed IIVT tasks for the CIW and EIW. The Chinese and the English intertextual inference verification tasks, hereafter IIVT-C and IIVT-E (Appendix 3 in supplementary materials), were used to measure students' ability to draw valid inferences by synthesizing information from multiple materials. As mentioned previously, inference verification tasks have been widely employed in previous studies (Braasch et al., 2014; Bråten & Strømsø, 2010), which have demonstrated the appropriacy of such tasks for measuring multiple-text comprehension.

Twenty items (eight valid and twelve invalid inferences) were designed. The students were asked to judge the validity of each item based on the materials by indicating "yes" (valid inference) or "no" (invalid inference). None of the items could be answered by referring to only one of the materials; the students needed to consider the information from at least two of the seven materials (six reading passages and one recording) to judge the validity

of each statement. IIVT task scores represented the number of correct inferences made by the students out of the 20 items. Cronbach's α was .65 for the scores on IIVT-C and .60 for the scores on IIVT-E. Although the reliability estimates were lower than expected, the results were consistent with those reported in previous studies adopting similar methods (Braasch et al., 2014; Bråten & Strømsø, 2010), which had Cronbach's α values ranging from .64 to .68.

Strategy inventory for integrated writing. The present study adopted the strategy inventory for integrated writing used by Yang and Plakans (2012) (Appendix 4 in supplementary materials). The questionnaire consisted of six factors related to writers' use of self-regulatory, discourse synthesis and test-taking strategies at three stages (i.e., before, during, and after writing) when completing an integrated writing task. As discourse synthesis strategy use was at the core of the present study, we focused on the three factors related to the discourse synthesis operations of organizing, selecting, and connecting from Spivey and King's (1989) framework to answer the research questions. The discourse synthesis factors consisted of ten items that were allocated to the pre-writing stages. The other three factors (i.e., monitoring, evaluating, and test-wiseness) related to strategy use in the during- and post-writing stages were beyond the scope of the present study and were not included in the data analysis. The Cronbach's α of the ten items was .89, indicating a good estimate of reliability.

3) Procedures

The two integrated writing tasks were administered at four local secondary schools. The 415 students participating in the present study completed both the CIW and EIW in relatively natural classroom settings. The students performed the writing tasks mostly in class as regular classroom assignments. We did not adopt a counterbalanced design in the present study because we needed to accommodate the schedule of each school administering the writing tasks. The test dates were suggested by the schools based on the discussions between teachers from the Chinese and English departments.

To complete each task, the students first spent three minutes skimming the six written texts. They then listened to a recording for approximately twelve minutes and spent one hour writing an essay in response to the writing prompt. Although the recording was only played once, all of the reading materials were available to the students throughout the process. After completing the integrated writing task, students were given ten minutes to perform the IIVT task. The same procedures were applied to the CIW and EIW. In the CIW, the students were given five minutes to respond to the strategy inventory after completing the IIVT-C.

We adopted the four-trait rubrics to assess the students' integrated writing performance. The CIW and EIW were each marked by a pair of raters (a primary and a secondary rater) with a master's degree in a relevant field and experience in teaching Chinese and English, respectively. Standardization meetings were held twice prior to the actual marking. Anchor essays that exemplified different proficiency levels in the rubrics were selected for discussion and trial marking. Each of the essays was marked by the primary rater, and then about a third of the essays (i.e., 138 essays) were marked by the secondary rater. The raters marked the essays independently, and the scores of the 138 essays assigned by both raters were summed and averaged. When the scores assigned by the two raters differed by two marks or above, a third rater was involved, whose score was summed and averaged with the closest score assigned by the original rater. In the CIW, the inter-rater reliability estimates of the four subscales ranged from 0.68 to 0.85 using the Pearson product-moment correlation. As for the EIW, the inter-rater reliability estimates of the four subscales ranged from 0.70 to 0.75. Cronbach's α was .90 and .96 for the scores in the CIW and EIW respectively.

Two samples (see Appendix 5 for English sample, and Appendix 6 for Chinese sample in supplementary materials) demonstrated the writing performance of a student who performed well in both tasks. In the Chinese task, the student scored 7 for contextual awareness, 7 for citation and synthesis, 5 for opinion and argument, and 6.5 for written expression and

organization. In the English task, the student scored 8 for contextual awareness, 7.5 for citation and synthesis, 7 for opinion and argument, and 6 for written expression and organization.

4) Data analysis

The data collected from the two integrated writing tasks were coded and entered into SPSS 24.0 for statistical analysis. Descriptive statistics (i.e., mean, standard deviation, skewness, and kurtosis) were calculated to examine the central tendencies, variation, and distributional properties of the data. Pearson product-moment correlation analysis was carried out to check the correlations between the students' scores in the CIW and EIW, strategy inventory, IIVT-C, and IIVT-E. Exploratory factor analysis (EFA) was performed to assess the construct validity of CIW and EIW.

SEM was then performed with Mplus 7.0 to examine the contributions of the discourse synthesis strategy use and multiple-text reading comprehension to integrated writing performance in L1 and L2 settings. We evaluated candidate models using several fit indices, including the root mean square error of approximation (RMSEA), comparative fit index (CFI), and Tucker-Lewis index (TLI) to select the best-fitting model to account for the relationship between the variables.

Results

Descriptive statistics (i.e., means, standard deviations, kurtosis and skewedness values) are shown in Table 1. The mean scores for the CIW and EIW were 15.71 and 18.01 respectively, and the scores for the IIVT-C and IIVT-E were 13.49 and 11.66, respectively. With regard to multivariate normality, Kline (2016) suggested that variables with absolute values of skewness larger than 3.0 should be considered severely skewed and that an absolute value of kurtosis greater than 10 would indicate severe kurtosis. Table 1 shows that the absolute values of skewness ranged from .62 to 1.58 and that kurtosis ranged from .56 to

4.29. All of the absolute values fell within the acceptable range, suggesting normal distributions of the variables.

Table 1 Descriptive statistics for measured variables (*N*=415)

	Min	Max	*M*	*SD*	Skewness	Kurtosis
Discourse synthesis strategy use	10	50	31.04	6.78	-.69	1.43
Chinese intertextual inference task (IIVT-C)	.00	19	13.49	3.33	-1.58	4.29
English intertextual inference task (IIVT-E)	.00	18	11.66	3.22	-1.19	2.53
Chinese integrated writing (CIW)	.00	28.75	15.71	5.71	-1.06	1.04
English integrated writing (EIW)	.00	34.50	18.01	8.71	-.62	-.56

Table 2 shows the results of correlational analysis of the five variables. As expected, integrated writing performance was positively correlated with discourse synthesis strategy use and multiple-text comprehension in both L1 and L2 settings. The correlation coefficients between the five variables ranged from .10 to .57 at the $p < .05$ or $p < .01$ level. The correlations between discourse synthesis strategy use and integrated writing were .26 (CIW) and .28 (EIW). The correlations between multiple-text comprehension and integrated writing were higher, with values of .41 obtained for L1 (IIVT-C and CIW) and L2 (IIVT-E and EIW). A possible explanation for this phenomenon is that the nature of the instruments was different: The intertextual inference verification tasks and integrated writing tasks were both performance-based measures, but discourse synthesis strategy use was self-reported. In addition, the topics of the Chinese and English intertextual inference verification tasks were consistent with their corresponding integrated writing tasks. The inventory for discourse synthesis strategy use was not topic-specific, but dealt with integrated writing in general. A significant moderate correlation was observed between CIW and EIW, implying that a cross-linguistic relationship exists between L1 and L2 integrated writing.

Table 2 Bivariate correlations of variables

	1	2	3	4	5
1. Discourse synthesis strategy use	1				
2. Chinese intertextual inference verification task (IIVT-C)	.10*	1			
3. English intertextual inference verification task (IIVT-E)	.19**	.23**	1		
4. Chinese integrated writing (CIW)	.26**	.41**	.28**	1	
5. English integrated writing (EIW)	.28**	.30**	.41**	.57**	1

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

EFA was conducted on the two latent factors, CIW and EIW. In both tasks, the following four indicators measured students' integrated writing performance: (1) contextual awareness, (2) citation and synthesis, (3) opinion and argument, and (4) written expression and organization. The Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy revealed values of .82 for the CIW and .85 for the EIW, both of which exceeded the cut-off value of .60, indicating that these data were suitable for factor analysis (Tabachnick & Fidell, 2007). The significant results (p < .001) of the Bartlett's test of sphericity obtained for both CIW and EIW suggested that the correlation matrices were not independent, enabling factor analysis to be carried out. The initial factor extraction of CIW yielded four eigenvalues, one of which was larger than 1.0, and explained 73.98% of the variance. The loadings of the four indicators were relatively high, ranging from .76 to .97. The initial factor extraction of EIW produced four eigenvalues, one of which was larger than 1.0 and explained 88.05% of the variance. The EIW also had high factor loadings, which ranged from .89 to .97. One factor was derived from the observed variables of CIW and EIW respectively. In both cases, the total variance was well-explained by their respective factor, indicating that the construct validity of the CIW and EIW was satisfactorily examined by EFA. These results suggested that both CIW and EIW are one-dimensional, and therefore we did not conduct confirmatory factor analysis (CFA) on CIW and EIW separately (Brown, 2014; Norm & Hatcher, 2013).

Figure 2 shows the standardized parameter estimates for the final model. Measures of model fit indicated that the hypothesized model demonstrated adequate fit to the data: χ^2 (39) =168.02, RMSEA=0.09, TLI=0.95, CFI=0.97). The overall model fit represented a good explanation of the hypothesized relationship between the use of discourse synthesis strategies, multiple-text reading comprehension, and integrated writing performance. Although the index of RMSEA fell marginally below the threshold for excellent model fit (RMSEA≤ .08), it was still considered acceptable.
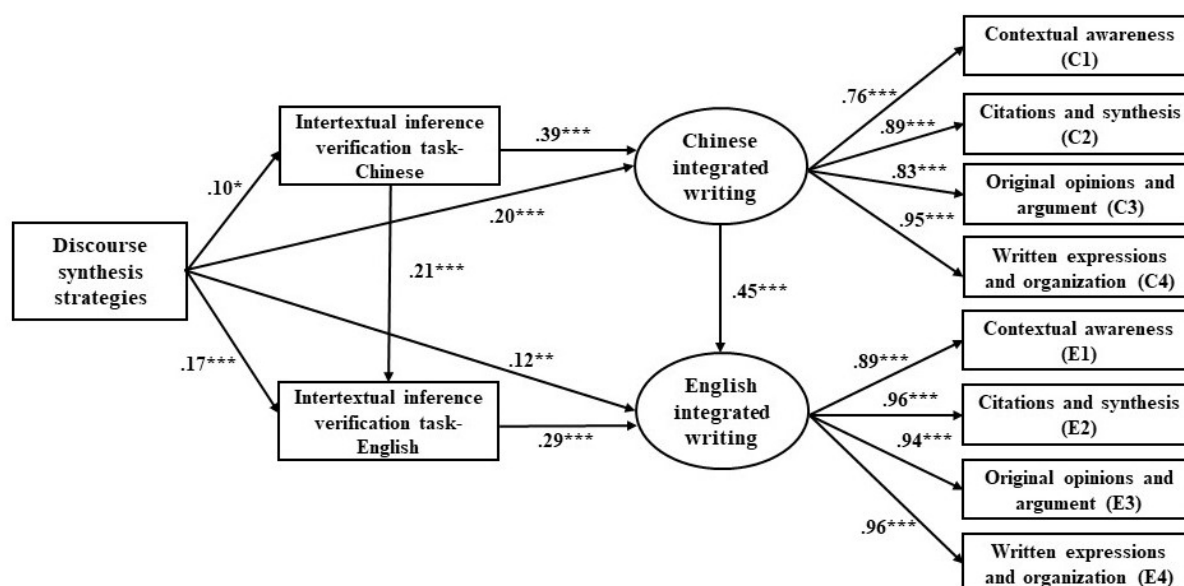

Figure 2. The final model with standardized estimates

As shown in Figure 2, integrated writing performance was directly influenced by multiple-text comprehension and discourse synthesis strategy use. Discourse synthesis strategy use exerted direct positive effects on both EIW and CIW. Scores for IIVT-E had a significant direct effect on EIW, and those for IIVT-C had a similar effect on CIW. Furthermore, IIVT scores played a mediating role in the relationship between discourse synthesis strategy use and integrated writing performance. The use of discourse synthesis

strategies exerted indirect positive effects on EIW via IIVT-E ($\beta = .05$, $p < .001$) and on CIW via IIVT-C ($\beta = .04$, $p = .04$). In addition to the consistent effects observed in the cases of IIVT and discourse synthesis strategies in the L1 and L2 integrated writing tasks, cross-linguistic effects were also found. CIW had a significant direct effect on EIW. Scores on IIVT-C directly influenced IIVT-E scores and EIW ($\beta = .06$, $p < .001$). Discourse synthesis strategies exerted a direct effect on CIW, which in turn influenced EIW ($\beta = .09$, $p < .001$). These findings indicate that L2 integrated writing performance was influenced by multiple factors governed by the use of discourse synthesis strategies. The ability to draw valid inferences through synthesizing information from across multiple texts in both L1 and L2 integrated writing performance were all significant factors contributing to L2 integrated writing.

Discussion

The present study explored factors influencing integrated writing performance with a particular focus on the effects of intertextual processing measured by a strategy inventory for intertextual inference verification tasks and integrated writing. The SEM model demonstrated a positive relationship between the use of discourse synthesis strategies, multiple-text comprehension, and integrated writing in both L1 and L2 settings. Cross-language transfer from L1 to L2 in both multiple-text comprehension and integrated writing was also observed.

1) The effects of intertextual processing on integrated writing performance

The results of the SEM analyses substantiate our hypothesis that discourse synthesis strategy use and multiple-text comprehension are both crucial operations in L1 and L2 integrated writing performance. Discourse synthesis, the strategies writers use in performing integrated writing tasks, had a direct effect on writing performance and was mediated by the multiple-text comprehension process. The results agree with the general argument that strategy use is a critical factor that can differentiate language learning performance (Oxford,

1990). Focusing specifically on integrated writing, the present study's findings support the hypothesis that when responding to cognitively demanding tasks such as integrated writing, strategic discourse synthesis plays an overarching role throughout the process (Grabe, 2001; Segev-Miller, 2007; Weigle & Parker, 2012). Strategic discourse synthesis is also crucial to better writing performance (Plakans & Gebril, 2013; Yang & Plakans, 2012). Writers need to be conscious of the strategies that they use for organizing, selecting, and synthesizing information when working with multiple-source documents. Furthermore, we found the significant positive effect of strategy use on integrated writing in both L1 and L2 settings.

The findings of the present study also reveal that the use of discourse synthesis strategies is essential not only for the final written product but also in the process of multiple-text comprehension. This echoes the findings of a number of studies that strategic processing is more predictive of multiple-text comprehension than other factors, such as topical knowledge (Anmarkrud et al., 2014; Bråten et al., 2014; Bråten & Strømsø, 2010). As shown in the present study and previous ones, the ability to draw valid intertextual inferences by synthesizing information from multiple documents is a significant indicator of multiple-text comprehension literacy. This ability can affect the quality of integrated writing (Andreassen & Bråten, 2011; McNamara, Kintsch, Songer, & Kintsch, 1996).

In contrast with the findings of Guo and Huang (2018), the influence of discourse synthesis strategies identified in the present study indicate that in an integrated writing task, the key operation in which the writers are involved is a complex intertextual meaning-making process. The comprehension and integration of information within and across multiple source texts occur reciprocally in the pre-writing stage as students select, organize, and synthesize appropriate information from the given materials in light of the task's requirements. The reciprocal interaction between multiple-text comprehension and integrated writing and the similar nature of cognitive operations entailed by the two tasks may explain the direct effect

of discourse synthesis strategy use on intertextual inference verification and integrated writing performance.

2) Factors contributing to L2 integrated writing

The SEM model also found cross-linguistic transfer between L1 and L2. L1 integrated writing exerted a direct effect on L2 integrated writing. A direct cross-linguistic effect also existed in the case of multiple-text comprehension, as the Chinese intertextual inference task scores were significantly associated with the English task scores. The present study substantiates Cummins' (1979) seminal Linguistic Interdependence Hypothesis in the contexts of both multiple-text comprehension ability and integrated writing competence from L1 to L2.

Echoing the findings of previous studies on the cross-linguistic transfer of literacy task performance (Cumming et al., 1989; Karimi, 2015; Schoonen et al., 2003; van Weijen et al., 2018), the present study found that the ability to integrate multiple-source information into written production in L1 is beneficial to students' L2 integrated writing performance. It is reasonable to posit that similar to literacy skills that have been extensively examined in prior research such as single-text reading comprehension and independent writing, both multiple-text comprehension and integrated writing are transferable skills that can be built upon the developmental levels of these skills in L1. The transferability between L1 and L2 integrated writing observed in the present study also implies that the developmental level of intertextual processing in L1 with regard to organizing, selecting, and connecting information from multiple sources into a written product could serve a significant predictor of the achievement levels of learners in L2 integrated writing. Contrasting with Albrechtsen's (2008) study, though the Grade 10 participants seemed to have reached a level of L1 writing skills similar to that of the university students, they were unable to apply their L1 skills to the L2 writing

task. Whereas in the present study, the secondary four students had attained the developmental level that enabled them to transfer their L1 writing skills to L2.

L1 multiple-text comprehension was also found to be a critical factor contributing to L2 integrated writing, which supports Ringbom's (2007) claim that comprehension may be more tangible for the learners to transfer their L1 skills to L2. The effects of L1 multiple-text comprehension on L2 integrated writing performance was mediated by L1 integrated writing performance and by L2 multiple-text comprehension. The significance of the transferability of these skills lies particularly in the facilitation of L2 integrated writing performance. In short, the current study concurs with previous studies in support of Cummins' (1979) Linguistic Interdependence Hypothesis for both task performance and strategy use, particularly for languages of different orthographies (e.g., Guo & Huang, 2018; Yamashita, 2002; Yu, 2008).

Implications

The findings of the present study have several theoretical and pedagogical implications. We add to the limited studies examining the effects of intertextual processing on students' performance on listening-reading-writing tasks in both L1 and L2 settings using the within-subject comparison approach. The confirmed model illustrated the positive relationship between discourse synthesis skills, multiple-text comprehension, and integrated writing, suggesting that strategic intertextual processing is an integral part of the construct of integrated writing. Future research on the effect of intertextual processing on other integrated tasks (e.g., integrated speaking) could advance our understanding of the construct of authentic academic skills. The transferability from L1 to L2 observed in the present study suggests that L1 integrated writing and multiple-text comprehension are significant factors contributing to L2 integrated writing. Thus, the two factors should be taken into consideration to illuminate differences in performance on L2 integrated writing tasks.

This study also offers some pedagogical insights. Given that integrated writing involves the integration of multiple-source information and the synergy of different language skills, it imposes very high cognitive demand on learners with regard to intertextual processing. Language teachers must adopt skill-based approaches to enhance students' awareness of and ability to present their arguments by organizing, selecting, and connecting appropriate information from multiple sources in light of task requirements. In addition to this basic meaning-level comprehension, the development of deep-level strategic processing abilities such as comparing, contrasting, and connecting information within a single text and across multiple texts should also be incorporated into regular language classrooms (Anmarkrud et al., 2014; Bråten et al., 2014). Tasks eliciting the integration of multiple-source information could be helpful in examining students' multiple-text comprehension proficiency and diagnosing areas that require instructional intervention. For L2 teaching, it may be good for teachers to make explicit references to learners' L1 so that they can draw upon what they already know, as the transfer of L1 knowledge depends on how much cross-linguistic similarity the learners can identify (Ringbom, 2007).

Conclusions

Several limitations of the present study must be acknowledged. First, modification of the intertextual inference verification tasks would be necessary, given the acceptable, but slightly low reliability estimates obtained in the present study and in prior research (Braasch et al., 2014; Bråten & Strømsø, 2010). Second, the two integrated writing tasks were designed in accordance with the format of the prevailing HKDSE Paper 3, and the results of the present study may not be generalizable to all integrated writing settings. Studies adopting tasks with different forms should interpret the results of the present study carefully. Third, students did the two integrated writing tasks in relatively natural classroom settings. It was not feasible to adopt a counterbalanced design because we needed to accommodate the schedule of each

school to administer the two tasks. It is necessary to take into account the potential effects of the lack of counterbalancing of the tasks on students' task performance. Last, integrated writing tasks entail complex cognitive operations, which might not be fully measured through a self-reporting method such as a questionnaire survey. Future studies could supplement the questionnaire survey with observation methods (e.g., the eye-tracking method) or ask participants to give a concurrent account of their thought processes to delve further into the complexity of integrated writing processes.

In view of the importance of integrated writing in the Hong Kong secondary school curriculum, and in international L1 and L2 language learning, the present study explored the effects of intertextual processing on integrated writing. The findings revealed that the use of discourse synthesis strategy played an overarching role throughout the process of integrated writing. It exerted a direct positive impact on written production and through multiple-text comprehension. Consistent effects were observed in both L1 and L2 settings. Cross-language transfer was observed between L1 and L2, which demonstrated that L1 integrated writing and multiple-text comprehension are both significant factors contributing to L2 integrated writing. In conclusion, strategic intertextual processing is fundamental to integrated writing. The incorporation of these skills in regular language classes is essential particularly at the senior secondary school level, to facilitate the successful transition of students to higher education.

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Appendix 1: Integrated writing task prompts

1) Chinese integrated writing task

   You are the student of Xingtan secondary school. You have been asked to give a speech about your opinion on filial piety during Chinese culture week.

   Listen to the discussion and use the reading materials to write a draft for a speech. Summarize traditional and contemporary views on filial piety. Express your views on the practice of filial piety in the modern age with reasons, evidence and explanation.

   The task should be completed in written form. Minimum word count: 500 words including punctuation.

2) English integrated writing task

   Your name is Samantha Yiu. You are the student union president of your school. You have been asked to give a speech on the preservation of Cantonese Opera to the teachers and students of your school.

   Listen to the discussion and use the reading materials to write a draft for a speech. Summarize both the positive and negative views, then choose the perspective more beneficial to Hong Kong's future development. Support your argument with reasons, evidence and explanation.

   The task should be completed in English. Minimum word count: 400 words including punctuation.

Appendix 2: Integrated writing scoring rubrics

The rubrics were adapted from Cheong et al. (2018), Zhu (2005, 2015), and Zhu et al. (2016).

A. Contextual awareness

Marks	Level descriptor
9-10	A good sense of self and audience is established with a correct form to address the audience and a clear self-introduction. An appropriate text type is used with a fitting ending to conclude the speech and show acknowledgement for the audience. The communicative purposes are achieved with excellence.
7-8	A sense of self and audience is established with a correct form to address the audience. Self-introduction is missing. An appropriate text type is used, but the ending is incomplete (i.e., only the conclusion of the text or an acknowledgement for the audience is included). The communicative purposes are achieved well.
5-6	A sense of self and audience is established, but the form of addressing the audience is imprecise. Self-introduction is missing. An appropriate text type is used. An ending to the speech is missing. The communicative purposes are achieved.
3-4	The sense of self and audience is weak. The form of addressing audience is imprecise and partly incorrect. Self-introduction is missing. The text type contains obvious mistakes (e.g., a mix of letter and speech format). The communicative purposes are not clear or contain many obvious mistakes.
1-2	There is a lack of sense of self and audience. The writer did not address the audience nor introduce him/herself. The required text type is not recognizable. The communicative purposes are mistaken or missing.
0	Blank answer sheets or the writing is completely off topic.

B. Citation and synthesis

Marks	Level descriptor
9-10	Important information is comprehensively and concisely quoted or rephrased from the source texts or the recording. Differing perspectives (from the source texts and the recording) are concisely synthesized. An effective connection between the source information and the writer's prior knowledge or experience is shown consistently.
7-8	Important information is purposefully quoted or rephrased from the source texts or the recording, but the expression is somewhat redundant. Differing perspectives (from the source texts or the recording) are synthesized. A reasonable connection between the source information and the writer's prior knowledge or experience is shown.
5-6	Some of the important information is quoted or rephrased from the source texts or the recording, while some key points are missing. Differing perspectives (from the source texts or the recording) are synthesized, but the content is insufficient.

	A connection between the source information and the writer's prior knowledge or experience is shown, but the content is somewhat insufficient.
3-4	Information is quoted or rephrased from the source texts or the recording, but the selection of information is unbalanced (e.g., overemphasis on the traditional or the modern view) with many key points missing. An attempt to synthesize differing perspectives (from the source texts or the recording) is made, but most of the content is not reasonable. A connection between the source information and the writer's prior knowledge or experience is rarely made; or most of the connections are inappropriate.
1-2	The writer made no attempt to select information. Most of the content is directly copied from the source texts or quoted from the recording. An attempt to synthesize differing perspectives (from the source texts or the recording) is not evident. A connection between the source information and the writer's prior knowledge or experience is not evident.
0	Blank answer sheets or the writing is completely off topic.

C. Opinion and argument

Marks	Level descriptor
9-10	Constructive and creative opinions are provided to explain a position. Sound and convincing evidence for the opinions is provided.
7-8	Constructive opinions are provided to explain a position. Appropriate evidence for the opinions is provided.
5-6	Personal opinions are provided to explain a position, but the explanation of the opinions is somewhat inadequate. Evidence for the opinions is provided, but it is somewhat weak.
3-4	Personal opinions are presented without any explanation. Evidence for the opinions is very weak. The writer did not give any concrete example to convince the reader.
1-2	The writer's stance on the topic is obscure or irrelevant to the task prompt. Evidence for the opinions is unreasonable or missing.
0	Blank answer sheets or the writing is completely off topic.

D. Written expression and organization

Marks	Level descriptor
9-10	Decent expressions are used to demonstrate the right attitude towards the audience (e.g., showing respect to the principal, guests, and teachers). Interaction with the audience is effective and consistent (e.g., by engaging the audience with questions in different ways). The text is well organized with the opening and the ending complementing each other. Ideas are clearly and cohesively presented. Sentences are meticulously crafted to form cohesion. A wide range of vocabulary is used accurately.

7-8	The correct expressions are used to demonstrate the right attitude towards the audience (e.g., showing respect to the principal, guests, and teachers). Interaction with the audience is present (e.g., by engaging the audience with question). The structure of the text is clear. Ideas are presented logically. Sentences are crafted correctly. The usage of vocabulary is correct.
5-6	The correct expressions are used in general to demonstrate the right attitude towards the audience (e.g., showing respect to the principal, guests, and teachers), but there may be occasional inappropriate expressions or omission (e.g., greeting the audience). Interaction with the audience is occasionally present (e.g., by asking the audience limited questions). The structure of the text is basically clear, but the development of ideas is somewhat confusing. Sentences are crafted correctly in general. Errors of usage of vocabulary are shown, but do not obstruct the comprehension of the speech.
3-4	Many inappropriate expressions are used, showing a lack of respect to the audience (e.g., the principal, guests, and teachers). Interaction with the audience is rare. The structuring of the text is poor. The development of ideas is confusing. Errors of sentences and usage of vocabulary obstruct the comprehension of the speech.
1-2	Inappropriate expressions are used throughout, showing no respect to the audience (e.g., the principal, guests, and teachers). No evident interaction with the audience is shown. The structure of the text is not recognizable. The development of ideas is very confusing. Errors of sentences and usage of vocabulary seriously obstruct the comprehension of the speech.
0	Blank answer sheets or the writing is completely off topic.

Appendix 3: Intertextual inference verification tasks

1) The Chinese task

	Item	Answer	
E.g.	Children not knowing how to express their opinions is the major cause of the "Hong Kong Kid" phenomenon.	Yes	(No)
1	Li Xiaoshi followed her parents' advice to enroll in economic courses, which shows that she is a typical "Hong Kong Kid" who relies on parents for everything.	Yes	No
2	Li Xiaoshi thought following parents' advice is a way of showing filial piety. This view represents the opinions of most students from the questionnaire.	Yes	No
3	Zhang Haoxuan disagreed with the act of "臥冰求鯉", because the character Wangxiang was too obedient to his parents and could not think independently.	Yes	No
4	Zhang Haoxuan thought children should not blindly obey their parents. His view is consistent with Confucius' interpretation of filial piety.	Yes	No
5	People's views on filial piety remain unchanged from past to present.	Yes	No
6	Following parents' advice is considered a way of showing filial piety even in contemporary society.	Yes	No
7	Hosting various cultural activities to promote filial piety can effectively improve the "Hong Kong Kid" phenomenon.	Yes	No
8	Filial piety is the essence of Chinese culture. However, people do hold consistent views on it.	Yes	No
9	People had different views on filial piety even back in the days of ancient China.	Yes	No
10	Wangxiang's behavior was consistent with Confucius' perspective, indicating that material supply did not suffice to show filial piety to parents	Yes	No
11	We should eliminate obedience from the definition of filial piety so as to prevent the "Hong Kong Kid" phenomenon.	Yes	No
12	Most students' understanding of filial piety from the questionnaire seemed incomplete compared to Confucius' views on it.	Yes	No
13	Children were asked to obey their parent completely, which represented a consensus on the definition of filial piety in ancient China.	Yes	No

14	Confucius' views on filial piety are in conflict with the contemporary views to a large extent.	Yes	No
15	The stories of "臥冰求鯉" and "枯竹生筍" demonstrated how children were manipulated by their parents in the name of filial piety.	Yes	No
16	We can learn from the spirit of Wangxiang and Menzong rather than their behaviors.	Yes	No
17	Filial piety requires children to obey their parents' advice, and they should not argue with their parents whatsoever.	Yes	No
18	In order to preserve the spirit of filial piety, we should encourage people to follow the examples of Wangxiang and Mengzong.	Yes	No
19	Children should respect their parents, and parents should allow the children to think independently.	Yes	No
20	The stories of "臥冰求鯉" and "枯竹生筍" can represent Confucius' interpretations of filial piety.	Yes	No

2) The English task

	Item	Answer	
E.g.	Very few people know about Cantonese opera.	Yes	(No)
1	Even though many opera artists have retired, some of them like Law Ka-ying are still actively involved in the art.	Yes	No
2	Andy highly values Cantonese opera and this fact agrees with the survey results.	Yes	No
3	Lily thinks Cantonese opera is a thing of the past and this can explain why the government no longer supports Cantonese opera.	Yes	No
4	Lily thinks the impact of Cantonese opera is fading because of the lack of government support.	Yes	No
5	Law Ka-ying, like many artists, cannot afford his living expenses by performing Cantonese opera.	Yes	No
6	The techniques involved in Cantonese opera are so complex that many people lost interest in it.	Yes	No

7	Even though Cantonese opera is highly valued by UNESCO, it is not very popular among the younger generation.	Yes	No
8	Although Cantonese opera is not popular among young people, many artists are still willing to devote themselves to the art.	Yes	No
9	The variety of play types is the reason why UNESCO recognized Cantonese opera as an intangible cultural heritage.	Yes	No
10	Nowadays, most Cantonese opera lovers are big fans of Law Ka-ying.	Yes	No
11	Performing Cantonese opera doesn't make money and this explains why young people are not interested in it.	Yes	No
12	The plan to renew people's interest in Cantonese opera is going smoothly because many people are art lovers.	Yes	No
13	The Rising Starts project may help increase the popularity of Cantonese opera among the younger generation.	Yes	No
14	Students who are not interested in Cantonese opera could still support the development of the Xiqu Centre.	Yes	No
15	Gaining UNESCO's recognition is the fundamental reason why the Hong Kong government is working hard to renew the people's interest in Cantonese opera.	Yes	No
16	The older generation seems to appreciate Cantonese opera more than the younger generation.	Yes	No
17	The value of Cantonese opera is recognized internationally and it is popular among young people in Hong Kong.	Yes	No
18	Law Ka-ying might have an important role to play in promoting the Rising Stars project.	Yes	No
19	The Rising Stars project might help change young people's negative views on Cantonese opera.	Yes	No
20	The value of Cantonese opera is well recognized locally as well as internationally.	Yes	No

Appendix 4: Inventory for discourse synthesis strategies in integrated writing (Yang & Plakans, 2012)

Instructions: Read each statement and indicate how often you used each strategy when completing an integrated writing task. Circle the appropriate number in each question.

No.	Item	very rarely	rarely	occasionally	often	very often
	Before I started writing the essay…	1	2	3	4	5
1.	I wrote down keywords from what I heard in the lecture.	1	2	3	4	5
2.	I tried to understand the relationship between the ideas of the reading and the lecture.	1	2	3	4	5
3.	I tried to memorize some ideas from the lecture.	1	2	3	4	5
4.	I made a writing plan (e.g., outlines, notes, keywords).	1	2	3	4	5
5.	I wrote down main ideas and important points from the reading passage.	1	2	3	4	5
6.	I searched for connections among sentences.	1	2	3	4	5
7.	I tried to understand the content according to how information is organized in each paragraph.	1	2	3	4	5
8.	I tried to understand the organization of the reading passage or the lecture.	1	2	3	4	5
9.	I summarized ideas from the lecture in my mind.	1	2	3	4	5
10.	I searched for connections among paragraphs.	1	2	3	4	5

Yang, H.-C., & Plakans, L. (2012). Second Language Writers' Strategy Use and Performance on an Integrated Reading-Listening-Writing Task. *TESOL Quarterly, 46*(1), 80-103. doi:10.1002/tesq.6

Appendix 5: English writing sample by a high-achieving student

Good morning/ afternoon to Principal, teachers and Students. Today, I am going to talk about Cantonese opera.

First of all, Cantonese opera is a traditional performing art. It was very popular in Hong Kong in the past. It also contained many techniques and types of plays. The basic techniques are the 'four skills and five methods.'. The four skills refer to singing, speaking, acting and movement; the other five methods refer to your hands, eyes, body, feet and hair. The types of play are mou and mun which represent battles, and love and social struggles respectively. Cantonese opera is a collection of Hong Kong's culture and wisdom. It contains different elements of Hong Kong culture such as language, previous lifestyle. Cantonese opera is extremely valuable. It can also be a signature of Hong Kong as it was recognized by UNESCO in 2009. Cantonese opera was proved as an intangible cultural heritage. It is really meaningful and special culture of the world. As a Hong Kong people, we should proud of it and continue this traditional culture.

Unfortunately, Cantonese opera is not as popular as before. The younger generation is less willing to watch it. Only 3% of students in our school thought Cantonese opera was popular due to the result of a survey. About 70% students even thought it was very unpopular. It shows that the golden era of Cantonese opera was gone. Its position has replaced by television programmes, pop songs, etc. Thus, many people do not know much about it and will not watch it. Performing Cantonese opera in Hong Kong becomes difficult because it is so difficult to earn money. The economic profit is low makes Cantonese opera is difficult to perform. Another important reason is that only a few young people are interested in being a Cantonese opera artist. Most artists are from the older generation such as Law Ka Ying. He is still very active in Cantonese opera. He is even a representative of it. However, he has a long history in Cantonese opera. He becomes the top of it but he is also a bit old. It is difficult for him to continue this culture for a long time.

In my opinion, I am so sad to see the fall of the Cantonese opera. I think it is one of the most important cultures in Hong Kong. It can greatly represent Hong Kong. I am glad that the government is trying to save this culture. I think the West Kowloon Cultural District can promote Cantonese opera efficiently. It can attract more younger generations to watch it and know more about it. On the other hand, I think the government should also try to train more young artists to continue this culture. We can try to develop an interest on it and try how to refuse it. Maybe we can find it funny.

At last, I hope Cantonese opera can be kept and become popular again. Thank you for your listening.

Appendix 6: Chinese writing samples by a high-achieving student
(The student first summarized how people in ancient China and in contemporary societies conceptualized filial piety, and the differences between the two conceptualizations. She then expressed her opinions arguing why she thought the ancient views are not suitable for modern societies and indicating filial behaviors that she thought more appropriate.)

校長，嘉賓，各位老師，各位同學，大家好，我是杏壇中學的〇〇〇同學。「孝順」在不同人心目中有不同的意思，而古代和現代對孝順的概念也大為不同。

首先，就讓我先介紹古代對「孝順」的概念是什麼。「孝順」對古代來說，不僅要有孝道，對父母有孝心，也包含要順從父母，要聽從父母的教誨和指令，什至要絕對服從。同時，當孩子長大後，也要存敬佩感恩的心來供養父母，就好像論語中的一句節錄：「子游問孝，子曰：『今之孝者，是謂是養。至於犬馬，皆能有養；不敬，何以別乎？』」，這句話突顯出中國古代文化要求子女不單是以物質來表示孝順，更要存敬意來表示孝順。相反，現代人對孝順的概念與古人有所差別，根據一項校內調查，反映出同學對孝順的定義大多是照顧父母起居和供養父母，另外，同學也認為自己是也有成或出人頭地也能表達孝順，可見，同學普遍著重物質，也反映出現代人較少著重在對父母是否存有感激、敬佩之心，反而著重於對父母無質上的支持，與古時不只是要供養父母，更著重於子女的孝心的孝順觀念大為不同。反映出古代與現代人的價值觀截然不同，有偌大的轉變。

不過，我認為古代人的孝順觀念並不適用於現今社會，古人著重於順從，但有時候會容易出現極端例子和造成過度順從。就好像「臥冰求鯉」的故事，是講述一個名叫王祥的孩子，其生母去世，但繼母並不疼愛他，什至說其壞話及誣陷他，令他失去父愛，但他也依然接受繼母無理的要求，說想在寒冬吃鮮魚，但河面結冰，正常人也會放棄捕捉，但就是因為他太過順從父母的話，所以也接受要求去捕捉，是不合理的，所以現今社會需要另一種行孝的方法，以下我會詳述我的見解。

我認為孩子不應盲目服從父母的話，就好像論語中「故當不義，則子不可不爭於父，臣不可不爭於君。故當不義則爭之，從父之令又焉得為孝乎！」意思是如果上級或長輩言行不已，就可以阻止或不執行。如果過度服從的話，就會出現很多「港孩」現象，父母往往因過度溺愛和保護孩子，處處為孩子辦事，安排一切，令孩子根本沒有學習對自身的生涯判斷與思考能力的機會，造成獨立性不夠和過分依賴的問題。所以我不認為絕對順從父母是一個行孝的方法，應該積極表達自己的意見，與父母意見不一時，應以理據支持自己的觀點，但是堅持已見，盡量不要太著重自己的意見，雙方也需要多體諒，地位需要平衡，才能維持好關係。父母能和子女維持好關係，就是對父母最大的欣慰。另外，子女做好自己的本份，不學壞，做一個正直的人也不辜負父母對自己的期望，就是子女最好的行孝方法，令父母心感安慰，我認為這些行孝方法比古代的守舊思想更適合現今的世代。

以上就是我對傳統及現代「孝順」觀念的概括和個人對適合現今社會行孝方法的見解，多謝各位耐心的聆聽，多謝。

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