

EFL test preparation in China: The multidimensionality of the reading-writing relationship

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Abstract

Recent research on the relationship between reading and writing in foreign language (FL) context is limited. However, an examination of the issue is critical for FL literacy curriculum design. The present study, contextualized in an English as a foreign language (EFL) test preparation program in China, explores the reading-writing relationship by examining two factors important for FL literacy acquisition: genre and level of language instruction. Findings revealed that level of instruction significantly moderated the relationship between reading and persuasive writing, but not descriptive writing. Regardless of level of language instruction, reading comprehension was a significant predictor of descriptive writing performance. A discussion of a curriculum that views reading and writing as complementary dimensions of language learning is offered.

Keywords: FL reading-writing relationship, level of language instruction, genre, integrated reading and writing instruction, EFL test preparation

To date, empirical research on the relationship between reading and writing in foreign language (FL) contexts with adult learners is limited. An examination of the issue will help identify aspects in and the extent to which FL reading and writing share similarities and differences, which is particularly critical for the design of literacy education (Schoonen, 2018) and for the justification of integrated reading-writing instruction highlighted by recent research (e.g., Cho & Brutt-Griffler, 2015; Esmaceli, 2002; Ferris & Hedgcock, 2014; Grabe & Zhang, 2013). In China, English reading and writing are often taught in isolation at the university level and in many English test preparation programs which have thrived since the late 1980s (Matoush & Fu, 2012). Such isolation ignores the dilemma English as a foreign language (EFL) learners face in separate reading and writing classes. For instance, some difficulties that learners face in the writing

classes actually need to be addressed via reading instruction (Grabe & Zhang, 2013). After receiving separate reading and writing instructions for several semesters, learners are, unfortunately, still struggling in transferring reading skills to writing, or applying writing skills to reading (Hao & Sivell, 2002). Introducing integrated reading-writing instruction will strengthen learners' literacy acquisition by engaging them in the practice of "read[ing] like writers" and "writ[ing] like readers" (Ferris & Hedgcock, 2014, p. 100).

Though some research has revealed the positive linear relationship between reading and writing in a first language (L1), similar conclusions cannot be made when it comes to reading and writing in FL context as FL literacy acquisition is much more complex than L1 literacy acquisition (Ferris & Hedgcock, 2014; Grabe & Zhang, 2013). The reading-writing relationship in FL is multidimensional given the unique variables associated with FL literacy acquisition (Grabe, 2009). To heighten the multidimensionality, the present study, contextualized in an EFL test preparation program in China, attempts to explore the reading-writing relationship by probing two factors important for FL literacy acquisition: genre and level of language instruction. Carrell and Connor (1991) demonstrated the role of genre in shaping the association between reading and writing, but this has been one of the only studies and continuing related research has been very limited. The variation of language instruction at different levels (e.g., beginning, intermediate, and advanced) and their impact on language acquisition have been highlighted (Maxim, 2006). One related important research question worth investigating is whether variations in language instruction across different levels would impact the trajectories of FL literacy acquisition. The findings of the present study will fill this gap and shed light on the multidimensional aspects of the FL reading-writing relationship. Findings will also provide some rationale for the implementation of integrated reading-writing instruction in English classrooms in China, particularly EFL test preparation programs.

Literature Review

The Reading-Writing Relationship

Reading is a cognitively complex activity integrating both lower- and higher-level processes (Bernhardt, 2011; Grabe, 2009; Koda, 2007). Lower-level processes include word recognition, syntactic parsing and meaning encoding. Higher-level processes involve the construction of a situation model by integrating existing background knowledge with the information extracted from the textual input to make appropriate inferences and interpretations (Grabe, 2009). Writing is an interaction between linguistic knowledge and communicative competence (Grabe & Kaplan, 1996). Linguistic knowledge, similar to the lower-level processes in reading, includes orthographic and morpho-syntactic knowledge as well as vocabulary knowledge. Communicative competence is indicated by genre awareness, which is essential for successful communication with a particular audience given that writing is a goal-directed activity (Grabe & Kaplan, 1996).

Cognitively, reading and writing are connected because the two share "a repertoire of discourse knowledge" (Nelson, 2008, p. 436). Reading is a constructive meaning-making process in which readers need to "build mental products of semantic meaning from textual cues" (Nelson, 2008, p.

436). Reading as a constructive process amplifies the theoretical relationship between reading and writing since writing is also a constructive process requiring writers to construct and evaluate the meaning for texts through cognitively demanding steps such as planning and reviewing (Nelson, 2008). Beyond the cognitive connection, reading and writing also share participant connection and intertextual connections (Nelson, 2008). Participant connection is the close link between how writers as readers attend to their audience and how readers as writers interpret texts. Writing as a goal-oriented activity aims to make the text understood by target readers. To achieve this goal, writers need to make assumptions about, for instance, readers' background knowledge and purposes for reading. Similarly, to comprehend a text, readers have to interpret the writer's explicit and implicit intentions by making appropriate inferences and assumptions (Nelson, 2008). Intertextual connections are important as each writing text is closely related to other texts, and writers write for readers as well as writers of other texts. Literacy activities such as reading to write and writing from reading are manifestations of the "interrelatedness of texts" and "interrelatedness of writers" (Nelson, 2008, p. 443).

Similarly, in FL research, reading and writing are viewed as parallel processes (Grabe, 2009) and the two skills are reciprocal in nature (Ferris & Hedgcock, 2014). Successful reading and writing both depend on learners' cognitive skills, linguistic knowledge, problem-solving skills, and schemata activation (Ferris & Hedgcock, 2014). Though some research has provided evidence for the positive relationship between reading and writing in L1, FL reading-writing relationship might be not the same as that of L1 (Ferris & Hedgcock, 2014; Grabe, 2009; Hedgcock & Atkinson, 1994). The positive linear relationship between the two skills should not be assumed. Considering FL learners' insufficient linguistic skills and rhetorical knowledge in the target language, the development of FL literacy skills is much more complex and challenging. The reading-writing relationship in FL should be viewed as multidimensional, and the magnitude of the relationship might change with the developmental stages of acquisition (Grabe, 2009).

Empirical Research on the Reading-Writing Relationship

Empirical research scrutinizing the reading-writing relationship usually takes two approaches: interventional studies and correlational studies. Interventional studies ask questions about whether improvement in one skill would lead to improvement in another. Correlational studies explore the correlation coefficients between the two skills or the predictive power of one skill on the other (Nelson, 2008). Some other studies examine the underlying constructs and common variance shared by reading and writing skills. For instance, Schoonen's (2018) recent research revealed that declarative linguistic knowledge (including vocabulary, grammatical, orthographic and metacognitive knowledge) explained the most common variance shared by reading and writing in both L1 and EFL. Depending on learners' literacy developmental stages, the amount of common variance in reading and writing explained ranged between 42% and 46% in L1 and between 40% and 66% in EFL.

Empirical studies, either interventional or correlational, usually test three models concerning the directionality between reading and writing skills. First is, the reading-writing interactive model, which argues that the two skills mutually influence one another and that the transfer of one skill to another is bidirectional (Shanahan, 2016). One influential study supporting this model is from Shanahan and Lomax (1988) who analyzed an extensive corpus data collected from 69 beginning

and 137 proficient L1 readers. Based on the results, the researchers found a better model fit for the interactive hypothesis. The second model is the reading-to-writing model. This model claims that reading knowledge can impact writing but not vice versa because reading provides a variety of linguistic knowledge and authentic examples of language use through source texts (Grabe, 2009; Hyland, 2003; Vandrick, 2003). Ito's (2011) study with 12th graders showed that improvement in EFL reading proficiency advanced academic writing skills. EFL reading comprehension ability is also found to be positively correlated with argumentative essay writing performance (Delaney, 2008). A meta-analysis by Graham et al. (2017) confirmed that having readers read texts could effectively promote the overall writing performance. Finally, the writing-to-reading model maintains that writing skills can impact reading, but not vice versa, because writing "fosters explicitness, facilitates reflection, encourages personal involvement with texts" (Graham & Hebert, 2011). Graham and Hebert's (2011) meta-analysis verified that practices such as writing itself, teaching writing, and increasing the amount of writing could all enhance reading comprehension. Marzec-Stawiarska's (2016) quasi-experiment with 80 EFL learners also revealed a positive effect of writing practice on reading comprehension.

Although the aforementioned studies (e.g., Ito, 2011; Marzec-Stawiarska, 2016) provide evidence supporting the positive relationships between reading and writing in FL, the multidimensional aspects of the relationship between the two skills as highlighted by Grabe (2009) and Ferris and Hedgcock (2014) are not tentatively examined by, for instance, giving attention to variables critical to FL literacy acquisition. Two studies, Schoonen (2018) and Carrell and Connor (1991), highlighted the attention of the potential multidimensionality. Schoonen (2018) found that the magnitude of the reading-writing correlation gradually dropped as secondary Dutch EFL learners moved into higher grades and became more proficient in English. The correlation coefficient decreased when moving from Grade 8 ($r = .81$) to Grade 9 ($r = .73$), and then to Grade 10 ($r = .63$), but still qualifying as having a big effective size according to Plonsky and Oswald (2014). Carrell and Connor (1991) found that when reading comprehension was measured by free written recalls, there was a significant association between reading and writing in either genre (descriptive vs. persuasive). However, when reading comprehension was measured by multiple-choice questions, a significant correlation was only found between reading and persuasive writing.

Given the findings by Schoonen (2018) and Carrell and Connor (1991), more research attention should be given to the investigations of the multidimensional aspects of the reading-writing relationship in FLs. The present study aims to provide more empirical evidence for the trajectories of this relationship by probing two variables associated with FL literacy acquisition: genre and level of language instruction.

Writing Genre

Genre is "a distinctive type or category of literacy composition" (Swales, 1990, p. 33). To complete a written task successfully, writers need to have the genre awareness of writing for different communicative purposes and audiences (Hyland, 2007; Schleppegrell, 2002). Writing in different genres is a demanding cognitive as well as a social process in which writers must understand why a specific text (e.g., descriptive and argumentative) is constructed in a particular way that is socially recognized (Hyland, 2003). The present study will focus on descriptive and

persuasive genres. Descriptive writing is a vehicle of expression with a focus on an object, an event or processes. It can take various forms (Schleppegrell, 2002). The present study asked participants to describe how they would address a situation they might encounter in a foreign language environment. In contrast, persuasive writing requires learners to make an argument (usually in hierarchies) and present a point of view by, for instance, comparing and contrasting, in order to persuade the target audience (Grabe & Kaplan, 1996). Based on Tardy's (2009) model, the two genres differ in four dimensions: formal knowledge (e.g., linguistic conventions); process knowledge (e.g., composing processes); rhetorical knowledge (e.g., genre awareness in social context); and subject-matter knowledge (e.g., content knowledge). These distinctions might have an impact on the development of the writing skills across genre, which justifies an examination of the role of reading in writing across genre, rather than solely looking at overall writing proficiency.

The importance of considering genre as a potential variable shaping the reading-writing relationship with Chinese EFL learners stems from two aspects. First, contrastive rhetoric reveals the distance between Chinese and English language when composing persuasive texts (see Connor, 1996). The distance puts Chinese EFL learners at a disadvantage when constructing persuasive writing. Chinese EFL learners have difficulty in manipulating the epistemic modality, the most crucial component of persuasive writing (Hu & Li, 2015). They also have a huge deficiency when expressing negative and polarizing meanings (Lv, 2015). Second, good descriptive writing does not necessarily lead to good academic writing (e.g., persuasive genre) (Carrel & Connor, 1991). Hirvela (2013) stated that the persuasive genre is "one of the greatest challenges many English language learners (ELLs) are likely to face" (p. 67). Compared with persuasive writing, learners performed better in composing descriptive writing (Way, Joiner, & Seaman, 2000). The generalization that good descriptive writers are also good persuasive writers cannot be made; in other words, there might be no linear relationship between descriptive and persuasive writing skills.

EFL Test Preparation in China and Level of Instruction

Messick (1982) defined test preparation as "any intervention procedure specifically undertaken to improve test scores, whether by improving the skills measured by the test or by improving the skills for taking the test, or both" (p. 70). Test preparation focuses on developing learners' test-wiseness and familiarity with the test procedures (Tunks, 2001). In the test preparation context, any regular instruction beyond "testwiseness" is very limited (Matoush & Fu, 2012). In China, there are numerous test preparation centers and programs and the population enrolled is large (Matoush & Fu, 2012). China has the largest number of English language learners across the world; achieving high English language test scores in both national tests such as College English Test in China and international tests such as Test of English as a Foreign Language (TOEFL) is the key to academic success (L. Cheng, 2008). Take the TOEFL test for instance. Liu (2014) reported that, among a total of 14,593 Chinese learners of English who enrolled in TOEFL test preparation programs, college students ($n = 2,736$), graduate students ($n = 10,009$) and the working professionals ($n = 634$) were the three biggest groups.

Instruction in test preparation programs in China, besides the "testwiseness" training, is featured by traditional English language teaching approaches such as extensive use of cross-linguistic

comparison and translation, extensive memorization, and an emphasis on written language and literary classics (Hu, 2002). Across different levels of instruction (e.g., beginning, intermediate, and advanced) in China, there are variations in the exposure of the amount of texts and text genres, literacy practices, teaching approaches, and curriculum designs, which is similar to the scenarios of foreign language instruction at the college level in the U.S. described by Maxim (2006). With these variations in the instructional approaches and materials used in test preparation programs in China, learners' development in reading and writing skills at different levels of instruction is unclear and the interplay between the two skills is equally unclear.

The Present Study

Research Questions

Motivated by the dearth of research on the reading-writing relationship in FL contexts, the present study, with adult Chinese learners of English in an EFL test preparation program as participants, attempts to explore three research questions:

1. Is there a relationship between reading comprehension and the overall writing performance, regardless of genre and level of instruction (beginning and intermediate)?
2. Does the relationship between reading comprehension and descriptive writing performance vary by level of instruction?
3. Does the relationship between reading comprehension and persuasive writing performance vary by level of instruction?

Participants, Setting, and Data Collection

The present study re-examines data from an experiment conducted at a large university in northeast China. The data collection was in early July at the end of the 2014 Spring semester. This dataset has been examined with different research questions; however, no studies have examined the relationship between reading and writing with a consideration of level of language instruction which will be analyzed in the present study.

A convenience sample of 82 participants enrolled in an English language program (an EFL Test Preparation program) at the university were recruited. A convenience sample was utilized to reflect the actual enrollment without taking volunteers for the study (Mermelstein, 2015). The participants were either students or faculty members affiliated with the university or came from different universities across China. The participants' ages ranged from 25 to 46 years old, with English language learning experiences varying between two to 30 years¹. All participants were enrolled in the program as part of an English training requirement before they could go abroad to study or do research. Based on the scores of a placement test administered before the start of the Spring 2014 semester, participants were placed into two levels of instruction offered by the program: beginning ($n = 13$) and intermediate ($n = 69$). The beginning-level participants could understand information primarily based on the contextual clues in texts. They had limited writing skills, for instance, they exhibited difficulty in providing appropriate or sufficient details for a coherent and cohesive argument. Errors in vocabulary use and sentence structures were common.

The intermediate-level participants could read texts that contain adequate subject-specific vocabulary and linguistically complex structures. They could accomplish compositions with adequate supporting details in coherence and cohesion, though the flow of their compositions needed to be improved.

The English language program considered in this study offered six courses in total: Listening, Speaking, Reading, Writing, Grammar, and Intercultural Communication. Reading and writing materials were prepared by the professors and instructors affiliated to the program. Reading materials contained multiple units. Each unit had four major components: (a) a reading passage followed by comprehension questions; (b) reading skills; (c) reading for skimming and scanning; and (d) an extended reading passage. The reading passages had diverse genres and topics. Reading instruction at both the beginning and intermediate levels primarily focused on the first two components, but learners are encouraged to independently complete the last two components as after-class activities. Writing materials and instruction focused on patterns of essay development across different genres including description, narration, and persuasion (e.g., students were taught how to use examples, cause and effect, comparison and contrast to support their claims in persuasive essays). Sentence skills were also highlighted during writing instruction. Noteworthy, as the program was for test preparation, participants received lots of instruction on test-taking strategies. Students in the beginning level, in addition to reading and writing instruction, also received plenty of explicit grammar and vocabulary instruction. Instruction at the intermediate level focused on reading and writing, but more attention was given to writing skill development. Both levels received English instruction for a whole semester consisting of 17 weeks, with three classes per week, and three hours for each class period. Data collection was on one weekday in a large lecture hall at the university at the end of the Spring 2014 semester in early July.

Instruments

Demographic questionnaire. Before the reading and writing tests, each participant completed a demographic questionnaire which asked participants to self-report their names, age, gender, native language, number of years studying English, years of experience living in an English speaking country, reasons for learning English, and enjoyment with English learning. Participants were also asked to self-rate their English proficiency from five options: “Novice”, “Intermediate”, “Advanced”, “Superior”, and “Distinguished”.

Reading comprehension. Reading Comprehension consisted of four reading passages in total. The passages were authentic texts, written by native speakers of English for native speakers of English, from sources such as magazines, journals, books and newspapers. The passages included a variety of genres such as narrative, descriptive and argumentative or persuasive texts. The total word count for the passages ranged between 650 to 750 words. Six task types (a total of 40 items) were used to capture reading comprehension: true or false or no information, short-answer questions, sentence completion, summary, choosing headings for paragraphs or sections of a text, and matching. The number of items for each passage varied. One hour was given to complete all the tasks, with a maximum reading comprehension score of 40 points. The reading comprehension test was designed internally by a group of professors of English affiliated with the English language program and was tested for reliability and validity measures.

Writing tasks. Writing tasks consisted of two essay writing problems (descriptive writing and persuasive writing). Twenty minutes was given to complete the descriptive writing and forty minutes to complete the persuasive writing. A minimum of 250 words (a common practice for English writing tests with beginning learners in China) was required for the persuasive writing while no minimum words were required for the descriptive writing. Considering the difficulties and challenges Chinese learners of English have when composing persuasive writing, more time was given to complete the task. The descriptive writing task asked participants to write an essay describing how they would address a situation they might encounter in a foreign language environment. The evaluation criterion was how appropriately and accurately participants addressed the situation for a specific purpose. The persuasive writing task asked participants to examine a statement and then make an argument about the statement. They were asked to justify their claims with sufficient details and reasoning. They were also expected to come up with solutions to the problems identified, if any². Scoring of the persuasive essay was based on three criteria: (a) task response (i.e., how appropriately an argument is developed); (b) coherence and cohesion (i.e., how arguments are interconnected and linked); (c) lexical response (i.e., accuracy and appropriateness of vocabulary used); and (d) grammatical range and accuracy. The maximum scores for the descriptive and persuasive writing tasks were 15 and 25, respectively. A holistic scoring approach was utilized for both the descriptive and persuasive writing tasks. Two trained and qualified raters scored the writing tasks, with an overall inter-rater reliability of approximately 95%.

Data Analysis and Results

Descriptive Statistics

R Statistical Software (Version 0.99.903) was used for data analysis. Table 1 summarizes the descriptive statistics for scores of reading comprehension, descriptive writing and persuasive writing by two levels of instruction (i.e., beginning and intermediate).

Table 1. *Reading, descriptive and persuasive writing scores by level of instruction*

Level of Instruction	Task	Min	Max	<i>M</i>	<i>SD</i>	Skewness	Kurtosis	Shapiro-Wilk Normality	
								W Statistics	<i>p</i>
Beginning (<i>n</i> = 13)	Reading	13	29	19.38	4.98	0.69	-0.82	0.91	> .05
	Descriptive Writing	7	11	9.38	1.33	-0.27	-1.39	0.09	> .05
	Persuasive Writing	12	22	17.23	3.24	-0.24	-1.32	0.94	> .05
	Overall Writing	9.5	16.5	13.31	2.14	-0.33	-1.16	0.96	> .05
Intermediate (<i>n</i> = 69)	Reading	13	37	26.01	4.90	-0.22	-0.38	0.98	> .05
	Descriptive Writing	8	14	10.52	1.24	0.31	-0.50	0.92	< .001
	Persuasive Writing	14	23	18.43	2.16	0.10	-0.75	0.97	> .05
	Overall Writing	11.5	18	14.48	1.52	0.19	-0.56	0.97	> .05

All the variables passed the Shapiro-Wilk normality test, except for descriptive writing at the intermediate level. However, this non-normal distribution should not be a concern in that regression analysis employed by the present study assumes the normal distribution of errors for any combination of values on the predictor variables, rather than normally distributed predictors or response variables (Williams, Gómez Grajales, & Kurkiewicz, 2013). Regression models built by the present study were diagnosed and normal distributions of errors were confirmed.

Preliminary Analysis

As preliminary analyses, independent-samples *t*-tests were conducted to compare the differences between the beginning and intermediate level in scores of reading comprehension, descriptive writing and persuasive writing. Results revealed a significant mean difference in reading comprehension ($t_{(80)} = -4.42, p < .001, d = 1.34$) between the two levels, with the intermediate level significantly outperforming the beginning level. The difference, according to Plonsky and Oswald (2014), had a large effect size. The intermediate level also significantly outperformed the beginning level in descriptive writing ($t_{(80)} = -2.99, p < .05, d = 0.89$), of which the mean difference had a medium to large effect size (Plonsky & Oswald, 2014). However, the difference in persuasive writing performance was not statistically significant ($t_{(80)} = -1.29, p > .05, d = 0.44$). The intermediate level did not outperform the beginning level in persuasive writing.

RQ1: Is there a relationship between reading comprehension and the overall writing performance, regardless of writing genre and level of instruction (beginning and intermediate)?

Multiple regression models were built to test the predictive power of reading comprehension and levels of instruction on the overall writing performance (an average score between the descriptive and persuasive writing scores). Results indicated that level of instruction did not significantly moderate the effect of reading comprehension on the overall writing performance. The relationship between reading comprehension and the overall writing performance did not significantly vary by level of instruction. Table 2 illustrates the results. In the table, *df* refers to the degrees of freedom. Model 1 is the main effect model and Model 2 includes the interaction effect. In all the multiple regression models conducted in the present study, level of instruction was dummy coded (Beginning = 0, Intermediate = 1), and reading comprehension was standardized.

Table 2. Multiple regression: Reading, level of instruction and overall writing

Variable	<i>B</i> Estimate	<i>SE</i>	<i>t</i>	<i>p</i>	<i>R</i> ²	<i>df</i>	<i>F</i>	Model Sig.
<i>Model 1</i>								
(Constant)	13.44	0.49	26.95	< .001	0.07	(2, 79)	3.02	0.05
Reading	0.13	0.20	0.65	> .05				
Level of Instruction	1.01	0.55	1.83	> .05				
<i>Model 2</i>								
(Constant)	14.26	0.69	20.68	< .001	0.10	(3, 78)	3.01	0.04
Reading	0.93	0.51	1.81	> .05				
Level of Instruction	0.22	0.72	0.31	> .05				
Reading*Level	-0.94	0.56	-1.69	> .05				

Note. Dependent variable: Overall writing performance

RQ2: Does the relationship between reading comprehension and descriptive writing performance vary by level of instruction?

To test the predictive power of reading comprehension and level of instruction on the descriptive writing performance, Model 3 (main effect model) and Model 4 (full model with the interaction effect) were built and compared (see Table 3). In the main effect model, reading comprehension ($B = 0.16, p > .05$) was not a significant predictor of descriptive writing performance, though level of instruction was a significant predictor. In the full model with the interaction effect, reading comprehension, level of instruction, and the interaction altogether significantly explained 11% of the variance in descriptive writing performance ($F(3, 78) = 3.32, p < .05$). However, the interaction was not significant ($B = -0.08, p > .05$), indicating that the effect of reading on descriptive writing did not significantly vary by level of instruction. Figure 1 illustrates the relationship between reading comprehension and descriptive writing performance by level of instruction. Regardless of the level of instruction, however, simple linear regression results revealed that reading comprehension was a significant predictor of descriptive writing performance ($B = 0.32, p < .05$) and explained 6% of its variance. In other words, better reading comprehension led to better descriptive writing at both levels of instruction.

Table 3. *Multiple regression: Reading, level of instruction and descriptive writing*

Variable	<i>B</i> Estimate	<i>SE</i>	<i>t</i>	<i>p</i>	<i>R</i> ²	<i>df</i>	<i>F</i>	Model Sig.	VIF
<i>Model 3</i>									
(Constant)	9.55	0.38	24.94	< .001	0.11	(2, 79)	5.03	< .01	
Reading	0.16	0.16	1.04	> .05					1.25
Level of Instruction	0.94	0.42	2.21	< .05					1.25
<i>Model 4</i>									
(Constant)	14.26	0.69	20.68	< .001	0.10	(3, 78)	3.01	0.04	
Reading	0.93	0.51	1.81	> .05					8.12
Level of Instruction	0.22	0.72	0.31	> .05					2.15
Reading*Level	-0.94	0.56	-1.69	> .05					6.55

Note. Dependent variable: Descriptive writing performance

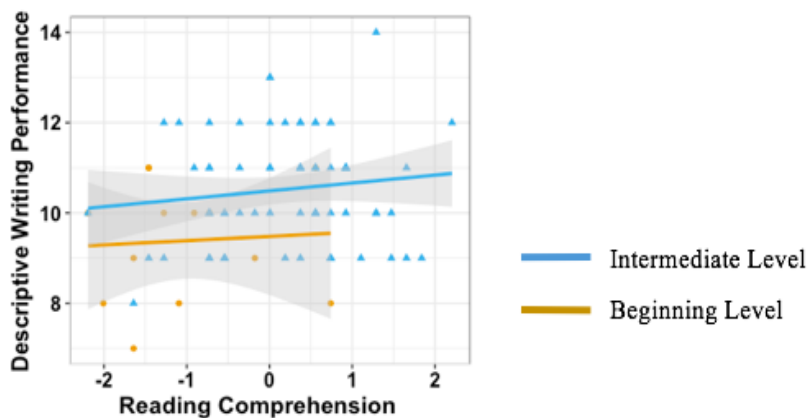


Figure 1. Descriptive writing according to reading by level of instruction.

RQ3: Does the relationship between reading comprehension and persuasive writing performance vary by level of instruction?

Similar statistical procedures were employed with regard to the predictive power of reading comprehension and level of instruction on the descriptive writing performance. Model 5 (main effect model) and Model 6 (full model with the interaction effect) were built and analyzed (see Table 4). In the main effect model, neither reading comprehension ($B = 0.1, p > .05$) nor level of instruction ($B = 1.08, p > .05$) was a significant predictor of persuasive writing performance. However, the interaction between reading comprehension and level of instruction was found to be significant ($B = -1.96, p < .05$), indicating that level of instruction significantly moderated the relationship between reading comprehension and persuasive writing performance. Reading comprehension, level of instruction and the interaction together explained 11% of the variance in persuasive writing performance. The comparison between the two models also revealed that the full model with the interaction effect was significantly better than the main effect model ($F(1, 32) = 6.16, p < .05$).

Simple slopes were tested and results indicated that reading performance was a significant predictor of persuasive writing performance at the beginning level ($B = 0.32, t = 2.42, p < .05$), but not a significant predictor at the intermediate level ($B = -0.04, t = -0.64, p > .05$). Figure 2 illustrates the association between reading comprehension and persuasive writing performance by level of instruction. At the beginning level, persuasive writing performance significantly improved as reading comprehension improved. However, at the intermediate level, there was a tendency that persuasive writing performance decreased as reading comprehension improved, but the decrease was not statistically significant.

Table 4. Multiple regression: Reading, level of instruction and persuasive writing

Variable	<i>B</i> Estimate	<i>SE</i>	<i>t</i>	<i>p</i>	<i>R</i> ²	<i>df</i>	<i>F</i>	Model Sig.	VIF
<i>Model 5</i>									
(Constant)	17.33	0.72	24.01	< .001	0.04	(2, 79)	1.48	> .05	
Reading	0.1	0.29	0.35	> .05					1.25
Level of Instruction	1.08	0.80	1.35	> .05					1.25
<i>Model 6</i>									
(Constant)	19.03	0.98	19.47	< .001	0.11	(3, 78)	3.1	< .05	
Reading	1.76	0.73	2.43	< .05					8.12
Level of Instruction	-0.56	1.02	-0.55	> .05					2.15
Reading*Level	-1.96	0.79	-2.48	< .05					6.55

Note. Dependent variable: Persuasive writing performance

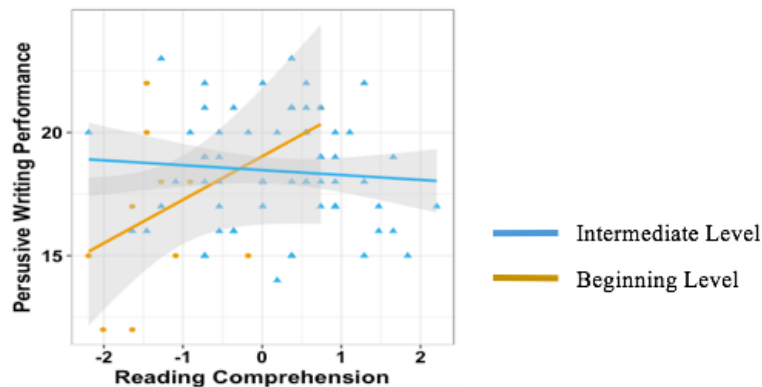


Figure 2. Persuasive writing according to reading by level of instruction.

Discussion

Overall, the present study revealed that, in the context of an EFL test preparation program in China, the patterns for the reading-writing relationship varied by level of language instruction (beginning and intermediate) and writing genre (descriptive and persuasive). Specifically, level of instruction significantly moderated the relationship between reading and persuasive writing, but not descriptive writing. At the beginning level, persuasive writing performance significantly improved as reading comprehension improved. At the intermediate level, however, persuasive writing performance slightly decreased as reading comprehension improved, though the decrease was not statistically significant. Regardless of the level of instruction, reading comprehension was a significant predictor of descriptive writing performance; better readers tended to be better descriptive writers. The findings support the discussion about the multidimensionality of the reading-writing relationship in FL as highlighted by Grabe (2009). The findings also underscore the need for the practice of an integrated reading and writing curriculum in China, where English reading and writing are usually taught in isolation, especially in EFL test preparation programs. Instead of test preparation programs featuring reading and writing as separate, independent classes, the two abilities could potentially be taught in unison in one course by, for instance, following Grabe's (2003) guidelines so that both abilities can be improved simultaneously. In doing so, learners could also develop an awareness of the cognitive, intertextual, and participant connections between reading and writing as stressed by Nelson (2008).

In addition, the findings echoed research on the sociocultural perspectives of language development. Writing across genre is largely shaped by the social contexts; thus the ability to successfully write across genre is dependent on writers' socialization and experience within diverse contexts (Snow & Uccelli, 2009). Writers who can write successfully in some contexts (e.g., description) might not be able to write equally successfully in other contexts (e.g., persuasion). The ability of writers to use appropriate language knowledge (e.g., grammatical, textual, functional, and sociolinguistic), strategic competence, and background knowledge (Douglas, 2000) specific to different communication purposes and audience is expected to vary and is not always paralleled, as the present findings indicated.

The university where data collection took place ranks among the best teacher training universities in China and is renowned for its strong programs in English education. The university consistently examines current research so that its instructional practices reflect the latest developments in theory and research. Brantmeier and Yu (2014) reviewed research published in academic journals in Chinese and reported that investigations, however, tended to emphasize the learning of one skill, rather than an interplay of skills. In a recent study investigating the connections between reading and writing, Paesani (2016) offered a thorough review of related studies and discussed implications that include teaching the skills of reading and writing together across various genres. Grabe and Zhang (2013) have also advocated for a curriculum that integrates reading and writing, and they discussed how opportunities to learn and practice the processes involved in reading-writing connections rarely happen in FL classrooms. This is evident given the findings of the present study, which accentuates the need for more research on the interplay of reading and writing skills with Chinese learners of English in China.

The findings of the study revealed a positive association between reading and descriptive writing, but the relationship between reading and persuasive writing was found to be a more complex scenario. It should be recognized that as learners become more advanced, the distinction between descriptive and persuasive writing may disappear. Descriptive writing is taught and learned early on, while persuasive writing are taught later and may also take a longer to develop. Future studies should include advanced stages of learning to confirm if indeed similar findings would hold true. The second consideration is the fact that Chinese learners of English face challenges when composing persuasive writing (Connor, 1996; Hu & Li, 2015; Lv, 2015). Learners at the intermediate level of instruction did not significantly perform better in persuasive writing than those at the beginning level, though they outperformed in descriptive writing. As the level of instruction advances, the learners' ability to write descriptive texts improved, but not necessarily their ability to write persuasive texts. The crucial question to be explored in the future might be the unique challenges of persuasive writing among Chinese EFL learners across all levels of instruction as well as the effective methodologies to address those challenges.

Pedagogically, implementing genre-based pedagogy, which has been shown to be as an effective way to promote FL writing, might be an option. A genre-based instruction "offers students an explicit understanding of how target texts are structured and why they are written in the ways they are" (Hyland, 2007, p. 151). Genre-based pedagogy, by connecting the purpose of social communication and the discourse features, helps writers not only contextualize their knowledge and opinions, but also promote their awareness of language use and text organization (Harman, 2013) as well as the awareness of differential genre parameters (A. Cheng, 2008). Empirical studies (e.g., Yasuda, 2011) have provided evidence supporting the positive effect of genre-based pedagogy on learners' genre awareness, perceptions and the overall writing competence. It could be beneficial if instructors of Chinese EFL learners give closer attention to the explicit teaching of the context, the goals, and the language use that are specific to persuasive writing.

The different patterns of the relationship between reading and writing at the beginning and intermediate levels of instruction also heighten the need to consider the role of characteristics of language instruction at different levels. As discussed earlier, both the beginning and intermediate levels received much instruction on test-taking strategies dedicated to achieving higher scores in standardized English tests such as TOEFL. Take the reading comprehension component in

TOEFL for example. All the reading comprehension questions are multiple-choice questions, which pushes language instructors at this particular program to teach learners test-taking strategies such as matching identical information at a surface level in the passage. It also pushes language instructors to teach learners “test-wiseness to circumvent the need to tap their actual language knowledge or lack of it” (Cohen & Upton, 2007, p. 211), for instance, looking for answers for the comprehension questions even without reading the text. Extensive training of such test-taking strategies with those learners might not help advance their persuasive writing ability. Additionally, instruction at the intermediate level in the English program considered in the present study primarily focused on reading and writing, but more attention was given to written language development. Without extensive reading at the intermediate level, the development of writing skills, especially the persuasive writing skills, might be at risk. By contrast, instruction at the beginning level was relatively comprehensive featuring reading and writing instruction as well as explicit grammar and vocabulary instruction, practice which might benefit the development of both reading and writing skills. The findings raise important questions about the effect of the teaching approach, instructional priority, and training in test-taking strategies on learners’ reading and writing development as well as the interplay between the two skills. Future research on the issue is needed for relevant pedagogical implications.

Limitations

One major limitation of the present study is the small sample size of learners at the beginning level of instruction ($n = 13$), and a major concern associated with it is the power to detect differences between the two levels: beginning and intermediate. However, it might not be an important problem. In regression analyses, a main effect of level of instruction for the descriptive writing performance was found; therefore, the convenience sample may be adequate for detecting the effect. Furthermore, the descriptive writing performance as a function of the interaction between level of instruction and reading comprehension was not significant. In terms of the relationship between reading and persuasive writing, the main effect of reading on persuasive writing was not significant, but was qualified by a significant interaction between reading and level of instruction; in other words, the most important effect was adequately powered. Another concern might be the representativeness of the larger population in China. The present sample came from a test preparation program and it may be different from the whole population of Chinese learners of English in China in an important way. Other replication studies with different samples outside of a testing program are definitely needed.

Conclusion

In conclusion, the present study revealed that the reading-writing relationship varied by writing genre and level of language instruction. The findings add important empirical evidence to illustrate the multidimensional aspects of the relationship between the two skills in FL. Findings also lend support for a curriculum that views reading and writing as complementary dimensions of language learning. Pedagogically, the study advocates for a test preparation curriculum that fully integrates reading and writing instruction. The pedagogic implication that reading and writing should not be taught in isolation is not a new claim; however, given that the present study

might be the first attempt to examine the reading-writing relationship within an English language testing preparation program in China, the pedagogic suggestion still holds its value.

Notes

1. Considering the variability of ages and learning experiences, the researchers of the present study compared regression models with and without age and learning experience as independent variables. Results indicated that the regression models with age and learning experience as independent variables did not significantly change the model fit when compared with the model without these two variables; therefore, the study, with a focus on level of instruction and genre, did not include age and learning experience as independent variables in the final regression models.
2. Because of the proprietary nature of the standardized test, the authors are not allowed to publish the actual instruments used, including the reading comprehension test and the writing test.

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