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Teachers' practices and beliefs about teaching writing: a comprehensive survey of grades 1 to 3 teachers

Tien Ping Hsiang[1] · Steve Graham[2] · Yu-Mao Yang[3]

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Abstract

A random sample of 782 grades 1 through 3 Chinese language arts teachers in Taiwan were surveyed about how they taught writing and their beliefs about writing. The underlying dimensions of teachers' reported writing practices and beliefs were established through factor analyses. Thirty-seven percent of the teachers reported they taught writing every day (average writing lesson across all teachers was 52 min). However, most teachers indicated they offered writing classes infrequently, as 60% of teachers reported teaching writing just once a week or less often. Teachers applied many different instructional procedures when teaching writing, but a majority of teachers reported using these practices only once a month or less often. Teachers were not positive about their preparation to teach writing, but slightly positive about their attitude towards their own writing, their attitudes and efficacy for teaching writing, and the progress they believed their students were making as writers. Their epistemological beliefs about how best to teach writing, how one becomes a good writer, and how one knows about writing were more mixed. Teachers slightly agreed that explicit instruction is important when teaching writing, but slightly disagreed that this is true for natural learning approaches. They also slightly agreed that effort and process are important ingredients to becoming a good writer, but slightly disagreed that learning and knowledge in writing are fixed. Further, they slightly agreed that writing knowledge comes from experts and authority figures. Teachers' beliefs about writing predicted how often teachers employed specific instructional procedures. Recommendations for future research and implications for instruction are provided.

Keywords Beliefs · Epistemology · Teacher-efficacy · Writing

✉ Steve Graham
steve.graham@asu.edu

Tien Ping Hsiang
tphsiang@um.edu.mo

[1] University of Macau, Macao, China

[2] Arizona State University, Tempe, USA

[3] National Taichung University of Education, Taichung, Taiwan

Introduction

Writing is pervasive in our social, educational, and occupational lives. It allows us to communicate, learn, persuade, record, chronicle, heal, reflect, and imagine (Bazerman et al., 2018). At home, we tweet, text, friend, WeChat, Line, and email using a variety of media and social networks (Freedman, Hull, Higgs, & Booten, 2016). At school, students use writing to summarize, analyze, interpret, and extend their understanding of new and old ideas (Bangert-Drowns, Hurley, & Wilkinson, 2004). At work, blue- and white-collar workers use writing to carry out a variety of essential tasks (Light, 2001). Because it is such a flexible and powerful tool, writing is viewed as a key competence that children must master (UNESCO, 2017).

Concern about students' writing worldwide

There is considerable concern that students are not acquiring adequate proficiency with writing by the time they complete their compulsory education (Tucker, 2017). This concern applies to affluent as well as less affluent countries. For example, in the latest assessment in the United States (U.S.), only 30% of students in grades 8 and 12 were classified as proficient or advanced writers on the National Assessment of Educational Progress (National Center for Educational Statistics, 2012). In Chile, a less affluent country in the same hemisphere, almost one-half of the children tested on a nationwide test did not write at an intermediate- or advanced-level (Agencia de Calidad de la Educación, 2017).

For those who do not learn to write well, there is a price to be paid. Poor writing can restrict one's personal, social, academic, and occupational attainments (Graham, 2019). Although learning how to write often begins at home (Tolchinsky, 2016), a primary objective of schooling is to teach children to become competent writers. This is not an unreasonable aim, as there is considerable evidence that students become better writers when they are taught to write (e.g., Koster, Trbushinina, De Jong, & van den Bergh, 2015). Even so, there is a growing concern that schools are not meeting this obligation.

A recent analysis of survey and observational studies examining classroom writing instruction found that writing instruction was not adequate in many classrooms and schools worldwide. Graham (2019) reviewed 28 studies conducted across the globe (but mostly in the U.S. and Europe) during the past 15 years. The review only included studies that involved a substantial number of teachers. The smallest investigation in the 2019 review included teachers in nine schools and the largest study involved 1520 teachers. Graham (2019) drew two conclusions from the studies reviewed. One, some students were in classrooms where teachers provided a solid writing program, and in some instances this instruction was exemplary. This was the case in both observational and survey studies (e.g., Cutler & Graham, 2008; Wilcox, Jeffrey, & Gardner-Bixler, 2016). Two, such instruction was not common, as students in most classes spent little time actually writing and received little instruction on how to write. While teachers commonly applied a variety of teaching practices

across the year, they applied these activities infrequently, with many writing instructional practices used less than once a month. These less positive findings were obtained in both survey and observational studies (e.g., Coker et al., 2016; Coker, Jennings, Farley-Ripple, & MacArthur, 2018; Gilbert & Graham, 2010; Hertzberg & Roe, 2016; Koko, 2016; Rietdijk, van Weijen, Jassen, van den Bergh, & Rijalaarsdam, 2018). Because writing is a challenging and complex task, requiring a considerable amount of instruction and time to master (Graham, 2019), it is unlikely that this minimalist approach to teaching writing is adequate.

The reasons why writing instruction is often insufficient in many classrooms are complex. How writing is taught involves a variety of factors that go beyond the classroom to include institutional, societal, cultural, political, and historical determinants (Bransford, Darling-Hammond, & LePage, 2005). For instance, writing is likely to be limited in classrooms in the Netherlands, as the Dutch Inspectorate requires that writing be taught just two times a month (Rietdijk et al., 2018). Similarly, the emphasis placed on teaching writing in the Greater China Region, the focus of this investigation, is likely constricted because Chinese societies generally view reading as more valuable than writing, and it is often assumed that students learn to write by reading (Feng, 2010). This does not mean that teachers do not make a difference. For example, a small but growing body of evidence has demonstrated that how writing is taught is influenced by teachers' beliefs. For instance, in survey and observational studies where teachers were more self-efficacious about their skills as writing teachers and more positive about teaching writing, students spent a greater amount of time writing in class and teachers spent more time teaching writing (e.g., Brindle, Harris, Graham, & Hebert, 2016; De Smedt, van Keer, & Merchie, 2016; Rietdijk et al., 2018). Moreover, teachers' writing practices in several previous survey studies were positively related to their epistemological beliefs about how writing was best taught (Graham, Harris, Fink-Chorzempa, & MacArthur, 2002).

While available research presents a relatively consistent and concerning portrait of writing instruction across countries and grades, this picture is based on a limited and skewed data-base. To illustrate, of the 28 studies reviewed by Graham (2019), two thirds of them took place in the U.S., and only five investigations involved children in grades one to three, which was the focus of the current investigation. All five of the primary grade studies were conducted in the U.S. This included a study observing 50 first grade teachers as they provided writing instruction (Coker et al., 2016), but the other four studies surveyed randomly selected teachers about their writing practices. Even so, just two of these five studies in the 2019 review by Graham (Coker et al., 2016; Cutler & Graham, 2008), involved an extensive examination of teachers' writing instructional practices, which was the focus of the present investigation. The other three studies examined restricted aspects of writing instruction: instructional adaptations for weaker writers (Graham, Harris, MacArthur, & Fink-Chorzempa, 2003), teaching handwriting (Graham, Harris, Mason, Fink-Chorzempa, Moran, & Saddler, 2008a), and teaching spelling (Graham et al., 2008b). Further, only one study explored the relationship between teachers' beliefs and how they reportedly taught writing to primary grade children. This was also a purpose of the current investigation. This study examined the association between teacher efficacy and the instructional adaptations they made for weaker writers (Graham, Harris, Fink-Chorzempa, & MacArthur, 2001).

If we are to obtain a better understanding of how writing is taught globally and what factors influence such instruction with young children, we need more investigations that examine the teaching of writing beyond U.S. borders. This is especially true at the primary grade level, as efforts to document and understand writing practices have rarely extended beyond qualitatively studying one or a few selected classrooms.

Purpose of the present study

The present study examined how writing was taught in grades one through three in Taiwan. It also examined if primary grade teachers' beliefs predicted the types of writing activities they reported assigning to students and the types of instructional procedures they reportedly used to teach writing. To obtain a general portrait of how writing is taught to primary grade children in Taiwan, we used survey methodology. We asked a randomly selected sample of teachers to complete a questionnaire about their writing practices and beliefs. Although observational and qualitative studies can provide great insight into writing instruction, it is virtually impossible to apply such approaches across all administrative regions. Although there is some concern that teachers may not accurately represent their teaching practices and beliefs, there is evidence that they are aware of their instructional practices, and they can answer questions about their literacy practices accurately (e.g., Bridge & Hiebert, 1985; Diaper, 1989).

We focused on the primary grades for the following reasons. One, it is critical that students get off to a good start in writing. Waiting until later grades to address writing problems that originate in earlier grades is not particularly effective (Slavin, Madden, & Karweit, 1989). Two, previous research examined the writing practices of Taiwanese teachers in grades 4 through 6 (Hsiang & Graham, 2016) and grades 7 through 9 (Hsiang, Graham, & Wong, 2018). While these studies involved a random selection of teachers, they only included teachers from Taipei City and other cities in the Greater China Region. The present study provided a more representative portrait of writing instruction in Taiwan at a critical juncture in children's writing development.

The Taiwan context provided an interesting setting for studying teachers' practices and beliefs about writing. On the 2018 Program for International Student Assessment (PISA; http://www.oecd.org/pisa/), Taiwan ranked sixth in educational attainment worldwide when reading, math, and science scores were averaged (the U.S. by comparison ranked 31st). Although these PISA tests did not assess students' writing, it is important to study instructional writing practices in countries like Taiwan where there is a high rate of literacy and students obtain among the highest scores on comparative international tests. It is possible that writing instruction in such countries can provide important insights into how to teach writing.

Research questions and predictions

We asked the following research questions; (1) How much time is devoted to teaching writing (RQ1)? (2) What types of writing are assigned to students (RQ2)? (3) How is writing taught (RQ3)? (4) Do teachers' beliefs predict teachers' reported writing

practices (RQ4)? Teachers' beliefs focused on their attitudes about their own writing and teaching it, perceptions of their preparation and efficacy to teach writing, their students' writing progress, and the epistemological value placed on different approaches for teaching writing as well as how one learns to write and knows about writing.

We predicted that teachers would not devote adequate time to teaching writing (RQ1). The What Works Clearinghouse Guide for writing instruction in the United States (Graham et al., 2012) recommended that 1 hour a day be devoted to writing instruction. This recommendation provided a comparison point for evaluating reported time devoted to writing instruction in Taiwan. We did not expect that most Taiwanese teachers would meet this benchmark, as an hour a day likely represents the upper end of time available for teaching writing. The Taiwanese Curriculum Guidelines recommends that primary grade teachers devote six, 40 min classes to teaching the language arts each week, with another two for classes devoted to teaching other material, which can include writing (Ministry of Education, 2014). Moreover, the ideal of devoting an hour a day to teaching writing has rarely been reported or observed in previous studies with primary grade teachers, although a survey study by Cutler and Graham (2008) provides a notable exception. This was also the case in prior studies surveying grade 4 through 9 teachers in Taipei City. Writing instruction was infrequent, being taught once every 2 or 3 weeks by the majority of teachers (Hsiang & Graham, 2016; Hsiang et al., 2018).

We further predicted that teachers would assign a variety of different types of writing (RQ2) and apply multiple procedures to teaching writing (RQ3), but these writing assignments and instructional procedures would be used infrequently. These predictions were consistent with general findings in prior observational and survey studies conducted in other countries with primary grade children (e.g., Coker et al., 2016), and findings from the two survey studies conducted with grades 4 through 9 teachers in Taipei City (Hsiang & Graham, 2016; Hsiang et al., 2018).

For RQ4, we anticipated that teachers' beliefs would predict teachers reported writing practices (i.e., types of writing assigned and instructional procedures to teach writing). We based this prediction on the Writer(s)-Within-Community Model (WWC; Graham, 2018). While this model situates writing within specific communities, and contends that writing and the teaching of writing are influenced by features of the community as well as macro factors involving history, culture, institutions, society, and politics, it also argues that writing and the teaching of writing are shaped by the agency and actions of the members of a community. Specifically pertinent to this study, the WWC model posits that what teachers do when teaching writing is influenced by their beliefs, including beliefs about themselves, their students, and writing. Such beliefs can foster or hinder the teaching of writing, as they can impact teaching behaviors, including what instructional procedures teachers' apply and how often they do so.

As noted earlier, only a single survey study with primary grade students has examined relations between teacher beliefs' and instructional writing practices (Graham et al., 2003). In this study, teacher efficacy for teaching writing and the epistemological value teachers place on different instructional approaches did not statistically predict the number of adaptations primary grade teachers made for weaker writers.

In contrast, studies with older elementary grade students involving the teaching of writing more broadly did find that teachers' beliefs predict teachers' instructional

practices in writing. In a U.S. survey study (Brindle et al., 2016), third and fourth grade teachers' beliefs (teacher efficacy, epistemological value placed on different approaches for teaching writing, attitudes towards their own writing and teaching it, and perceptions of their preparation for teaching writing) collectively accounted for a statistically significant 12–29% of the variance in the types of writing assigned and the use of evidence-based writing (EBP) practices, with teacher efficacy and epistemological for teaching writing making statistically unique contributions to predicting use of EBPs. In another U.S. survey study with grade 4 to 6 teachers (Gilbert & Graham, 2010), beliefs about efficacy to teach writing and preparation to teach it together accounted for a statistically significant 9% of the variance in teachers use of writing EBPs, after first controlling for time devoted to writing and student characteristics, with teacher efficacy making a statistically unique contribution to this prediction. An observational study with Grade 4 to 6 Dutch teachers (Reitdijk et al., 2018) found that teacher efficacy was statistically related to time allocated for teaching writing (accounting for 10% of the variance), and epistemological beliefs about teaching writing and teacher efficacy both statistically predicted the actual amount of time devoted to writing instruction (accounting for up to 12% for both types of beliefs).

An additional survey study (Hsiang & Graham, 2016) examined the predictive value of teachers' beliefs in the Greater China region (Taipei City, Macao, and Beijing). Grade 4 to 6 teachers' attitudes toward their own writing, attitudes toward teaching writing, and efficacy for teaching writing collectively accounted for a statistically significantly 7%, 17%, and 7% of the variance in teaching writing, providing additional writing support, and facilitating the writing process, respectively, after time devoted to teaching writing, teacher certification, and classroom characteristics were first controlled. Teachers' efficacy accounted for statistically unique variance for all three reported writing practices, while attitude towards teaching writing statistically and uniquely predicted teaching writing and providing additional supports. Similar results were obtained in a survey study with teachers in grades 7 through 9 conducted in Taipei City, Shanghai, Hong Kong, and Macao (Hsiang et al., 2018), as the same three teacher beliefs plus teachers' perceptions of the adequacy of their preparation to teach writing each made statistically significant and unique contributions to predicting multiple aspects of teachers' writing instruction after variance due to the other beliefs, class composition, and time spent on writing instruction were controlled.

While the studies reviewed above demonstrated that teachers' beliefs can account for statistically significant variance in the writing practices of elementary grade students even after controlling for writing time and other classroom variables, only one study has examined this relationship at the primary grade level and it restricted writing practices to instructional adaptations for weaker writers (Graham et al., 2003). The current study extended previous research by examining if teacher beliefs predict a broader set of instructional practices than just instructional adaptation. It further applied a greater number of teacher beliefs as predictors than have been applied in prior studies with teachers in the elementary grades. As in prior studies, we included the following teacher beliefs: attitudes about their own writing and teaching writing, perceptions of their preparation and efficacy to teach writing, and the

epistemological value placed on different approaches to teaching writing. We also included teachers' beliefs about their students' progress as writers and epistemological beliefs about how one learns to write and knows about writing. These epistemological beliefs have not previously been investigated.

We anticipated that the teacher beliefs included in our study would collectively and uniquely make statistically significant contributions to predicting how often teachers reportedly assigned different types of writing and how often they reportedly used specific instructional practices. Teachers who are more positive about their own writing capabilities, teaching writing, preparation to teach writing, efficacy to teach it, and students' writing progress should be more likely to ask students to write and apply instructional writing procedures than teachers who are less positive when it comes to these three beliefs. Such beliefs serve as a guide for action (Fives & Buehl, 2012). Likewise, teachers' epistemological beliefs should predict teachers' reported instructional practices, as they serve as a filter for thinking about how the teaching of writing should proceed (Fives & Buehl, 2012). This includes teachers' epistemological beliefs about the value of different approaches to teaching writing (i.e., explicit instruction and natural learning approaches). It also included epistemological beliefs about how one becomes a good writer and knows about writing. To assess these epistemological beliefs, we modified and expanded a scale developed by Chan and Elliott (2004a) that concentrated on teachers' beliefs about the nature of knowledge and learning. This scale was based on a four dimensional view of teachers' epistemological beliefs about learning and knowing (Chan & Elliott, 2004b): learning occurs through effort and process, learning is innate and fixed, knowledge is certain, and knowledge comes from experts and authority figures. For each of these dimensions, we developed items specifically focusing on writing by drawing also on a scale developed by Schraw and Olafson (2002). Because beliefs about knowledge are socially constructed (Graham, 2019), we added an additional dimension on how one becomes a good writer. Although western societies value ability when learning (e.g., Li, 2003), Chinese societies favor persistence, which is referred to as heart and mind (Li, 2002). Consequently, we designed items to assess this construct as it applies to writing.

To bring greater precision to our analysis examining the predictive value of teacher beliefs, we first controlled for variance due to gender, grade, class size, instructional time, and years spent teaching in the primary grades. With the exception of gender, the other six variables were all related to teachers' reported instructional practices in prior survey studies (e.g., Brindle et al., 2016; Graham et al., 2003; Hsiang & Graham, 2016).

Method

Participants

A random sampling procedure, stratified by region and grade levels, was used to identify 886 grade 1 through 3 Chinese language arts teachers from a population of 25,157 teachers in 2566 public and private primary schools in urban and rural Taiwan. Students in grades 1 through 3 in Taiwan must be at least 6 years old and

no older than 9 years old during the school year. Not included in this sample were special education teachers or teachers from offshore islands (Kinmen, Lienchiang, and Penghu). We purposefully selected 886 teachers to survey, as this provided a sampling error of less than 5% for the most common type of Likert-item in the survey (which contained six response options), using a 95% confidence level, assuming a return rate of 25% (Dillman, 2000).

Of the 886 teachers who received the survey, 802 were returned. Twenty surveys were eliminated as teachers either did not teach writing or most of the survey was not completed. This resulted in an effective return rate of 88.3%, narrowing the sampling error to $\pm 2.7\%$. Of the 782 teachers who taught writing, most of them were female (87%), public school employees (98%), and certified to teach elementary grade students (95%). More than one-third of the participating teachers held a Bachelor's degree (37%). One tenth of the teachers had taken coursework beyond the Bachelor's level (10%). One half of them had completed a Master's degree (50%), whereas a small minority had coursework beyond the Master's level (4%). As a group, they averaged 10.9 years of teaching experience at the primary grade-level ($SD = 6.87$).

Survey instrumentation

A survey was administered to all participants. Items for this survey were mostly drawn from instruments previously used to survey writing practices in elementary schools and teachers' beliefs in the Greater China Region (Hsiang & Graham, 2016; Hsiang et al., 2018). We also assessed teachers' epistemological beliefs about how best to teach writing using a scale designed by Graham et al. (2002), developed a new scale to assess teachers' beliefs about their students' progress as writers, and adapted items from previous scales assessing epistemological beliefs about knowledge and knowing (Chan & Elliott, 2004a; Li, 2002, 2003; Schraw & Olafson, 2002) so that they addressed writing.

Prior to administering the survey, four Chinese language arts teachers with teaching writing experience in grades 1 through 3 in Taiwan were paid to review the survey and provide feedback, including the suitability of items for primary grade writing instruction. Their feedback was used to revise the survey, and included changes such as modifying sentence from future to present tense because the survey was administered at the end of the school year, deleting or adding words to make statements easier to understand, and adding a supplementary note providing examples of writing activities in primary grades (e.g., drawing and writing, writing words, writing sentences/paragraphs, telling/sharing a story/personal experience, planning writing).

Background information

This section of the survey asked teachers about demographic information (e.g., gender, number of years spent teaching primary grade students), information about teachers' students (e.g., writing capabilities), and general information about writing in their class (e.g., grade taught, class size, types of materials used).

Teaching writing

Types of writing assigned Seven items (see Table 1) assessed how often specific types of writing were assigned (e.g., story writing), using a seven-point Likert-type scale (never [0], several times a year [1], once every 2 months [2], monthly [3], weekly [4], several times a week [5], and daily [6]; higher scores indicated the writing activity occurred more frequently). These items were selected so that they covered narrative, persuasive, and informational writing. A factor analysis of the seven items assessing the reported frequency specific types of writing were assigned yielded a single factor solution, with an eigenvalue of 2.88, accounting for 41% of the variance (coefficient alpha = .74). The score for types of writing was the average score of the seven items.

Instructional writing activities Thirty nine items (see Table 2) asked teachers to indicate how often they applied specific instructional writing practices (e.g., edit writing products, conference with students, teach strategies for planning). Teachers responded to each item using the same seven-point Likert-type scale described above. These 39 items focused on two major aspects of writing instruction: teaching writing (e.g., teach writing vocabulary, reteach writing skills and strategies) and supporting writers (e.g., students help their classmates, students use graphic organizers when writing) found to be effective in recent meta-analyses (e.g., Graham & Harris, 2017).

We conducted a factor analysis involving the 39 Likert-type items measuring how frequently specific instructional practices were reportedly used to teach writing. Using an oblique factor rotation, six factors with eigenvalues over 1.0 were obtained, accounting for 61% of the variance. Ten items did not load at .40 or higher on any factor and were removed from further analyses. The obtained factors were generally consistent with the constructs used to design this scale: teaching writing and supporting it.

One factor, teaching elements of writing (coefficient alpha = .91), accounted for 32% of the variance (six items: e.g., reteach skills and strategies, teach rhetorical devices). A second factor, promoting writing collaboration (coefficient alpha = .78), accounted for 9% of the variance (four items: e.g., model good team work, students help their classmates). The third factor, supporting writing ideation (coefficient

Table 1 Students engagement in specific writing activities during the academic year

	0 (%)	1 (%)	2 (%)	3 (%)	4 (%)	5 (%)	6 (%)	*M*	*SD*	CI
Story writing	35.1	32.1	11.5	13.4	6.4	1.3	0.1	1.3	1.3	1.2–1.4
Diary writing	15.6	17.9	4.9	20.0	28.9	6.6	6.0	2.7	1.8	2.6–2.9
Personal narrative	16.3	24.3	13.7	37.1	6.7	1.4	0.4	2.0	1.3	1.9–2.1
Poem writing	26.9	38.2	19.6	12.0	2.8	0.4	0.1	1.3	1.1	1.2–1.4
Opinion writing	23.6	27.5	7.2	16.3	16.1	7.2	2.0	2.0	1.7	1.9–2.2
Informative writing	25.3	42.9	13.9	12.6	3.7	1.6	0.0	1.3	1.2	1.2–1.4
Writing in response to reading	7.6	19.6	11.1	27.6	28.6	4.6	0.9	2.7	1.4	2.6–2.8

Teachers responded to a scale with 7-points: Never (0), Several times a year (1), Once every 2 months (2), Monthly (3), Weekly (4), Several times a week (5), and Daily (6)

Table 2 How frequently teachers apply specific writing practices in each of the instruction factors

	0 (%)	1 (%)	2 (%)	3 (%)	4 (%)	5 (%)	6 (%)	*M*	*SD*	CI
Teaching elements of writing								3.1	1.3	3.0–3.2
Reteach skills and strategies	4.0	27.1	10.0	26.3	18.4	12.4	1.8	2.7	1.5	2.6–2.8
Teach rhetorical devices	3.3	15.0	4.5	15.7	27.7	29.3	4.5	3.6	1.6	3.4–3.7
Teach paragraph skills	2.3	17.0	5.2	17.9	32.4	21.8	3.3	3.4	1.5	3.3–3.5
Teach describing	2.4	17.7	5.9	20.7	29.1	21.4	2.8	3.3	1.5	3.2–3.4
Teach ways to begin an essay	4.1	23.8	8.6	24.2	24.6	12.3	2.4	2.9	1.5	2.8–3.0
Teach ways to end an essay	4.0	24.1	8.3	24.5	24.7	12.2	2.3	2.9	1.5	2.8–3.0
Promoting writing collaboration								2.5	1.3	2.4–2.5
Model good team work	17.5	13.8	13.4	25.6	16.3	8.8	4.5	2.5	1.7	2.4–2.7
Students help their classmates	4.6	10.4	13.5	24.4	21.0	15.3	10.7	3.4	1.6	3.2–3.5
Students work in teams or pairs	18.5	13.3	14.3	28.9	12.7	7.9	4.3	2.5	1.7	2.3–2.6
Students join extra writing classes after school	42.3	17.2	10.3	14.1	8.2	4.8	3.1	1.6	1.8	1.4–1.7
Supporting writing ideation								3.7	1.2	3.6–3.8
Teacher writes comments on student paper	1.4	3.0	4.1	16.8	14.4	21.6	38.7	4.6	1.5	4.5–4.7
Students use graphic organizer when writing	4.0	5.5	9.1	25.5	20.4	18.5	17.1	3.8	1.6	3.7–3.9
Students plan writing	4.6	6.8	9.1	23.0	22.2	19.1	15.1	3.7	1.6	3.6–3.8
Teaching writing creativity								3.4	1.3	3.3–3.5
Teach writing creativity	2.6	20.3	8.1	25.7	22.9	18.4	2.0	3.1	1.5	3.0–3.2
Teach writing vocabulary (includes teaching how to make the character)	0.8	12.5	6.0	19.7	26.8	29.7	4.5	3.7	1.4	3.6–3.8
Providing extra writing assistance								2.4	0.9	2.3–2.5
Enrichment activities to support students' writing	4.1	33.2	10.9	32.8	13.3	4.4	1.4	2.4	1.4	2.3–2.5
Peer conferencing	6.8	29.1	10.9	28.3	14.9	9.4	0.6	2.5	1.5	2.4–2.6
Teacher conferencing	4.9	31.0	9.5	26.5	16.8	10.0	1.3	2.5	1.5	2.4–2.7
Teacher shares writing	39.7	29.8	5.4	11.7	7.2	4.9	1.3	1.4	1.6	1.3–1.5
Teach sentence skills	0.8	7.7	2.4	7.5	31.1	43.6	7.0	4.2	1.3	4.1–4.3

Table 2 (continued)

	0 (%)	1 (%)	2 (%)	3 (%)	4 (%)	5 (%)	6 (%)	*M*	*SD*	CI
Teach punctuation	0.1	8.5	3.2	12.2	25.1	42.1	8.8	4.2	1.3	4.1–4.2
Students imitate good models of writing	9.2	31.6	13.1	28.2	12.5	4.1	1.3	2.2	1.4	2.1–2.3
Students write at home with parental help	30.6	26.4	8.0	19.9	12.2	2.7	0.3	1.7	1.5	1.6–1.8
Students read writing to parents	24.9	35.0	9.0	17.2	10.8	2.6	0.5	1.6	1.5	1.5–1.7
Communicate with parents about students' writing	24.2	47.9	10.2	11.6	4.3	1.7	0.1	1.3	1.2	1.2–1.4
Facilitating text revision								4.0	1.2	3.9–4.1
Students edit their writing	1.3	3.2	6.8	20.0	23.4	24.3	21.0	4.2	1.4	4.1–4.3
Students revise their writing	3.8	5.9	10.2	21.9	24.7	20.9	12.5	3.7	1.5	3.6–3.8
Students share their writing	0.8	4.3	6.9	19.8	22.0	28.8	17.4	4.1	1.4	4.0–4.2
Others								2.7	0.9	2.6–2.7
Teach text structure	5.3	22.2	6.7	19.7	30.9	13.1	2.1	3.0	1.6	2.9–3.1
Teach planning strategies	11.0	30.3	9.6	27.9	13.5	7.1	0.6	2.3	1.5	2.2–2.4
Teach revising strategies	14.6	29.5	11.6	22.4	13.8	7.0	1.0	2.2	1.6	2.1–2.3
Teach how to image	2.8	20.2	9.5	30.1	22.7	14.0	0.8	2.9	1.4	2.8–3.0
Assign homework (paragraph length or longer)	8.1	26.2	10.8	25.4	22.4	4.9	2.2	2.5	1.5	2.4–2.6
Teachers show that they enjoy writing to students	21.9	30.8	9.0	17.4	10.8	8.1	2.1	2.0	1.7	1.9–2.1
Students use rubrics to evaluate their own writing	13.3	12.3	13.3	24.1	17.8	12.8	6.3	2.8	1.8	2.7–3.0
Students use model to practice writing characters	4.7	12.4	3.3	7.8	26.1	34.1	11.5	3.9	1.7	3.7–4.0
Students use computers when writing	27.2	18.2	13.7	16.0	12.3	9.0	3.6	2.1	1.8	2.0–2.2
Students use a library when writing	11.9	29.7	7.8	20.0	24.7	4.7	1.2	2.4	1.6	2.2–2.5
Students publish writings	13.7	17.4	13.7	22.3	11.5	13.1	8.3	2.7	1.8	2.6–2.9

Teachers responded to a scale with 7-points: Never (0), Several times a year (1), Once every 2 months (2), Monthly (3), Weekly (4), Several times a week (5), and Daily (6)

alpha = .71), accounted for 8% of the variance (four items: e.g., students use graphic organizer when writing; students use a model to practice writing characters). Coefficient alpha for this factor was improved from .68 to .71 when the practice writing characters item was removed (thus, this item was not included as part of this factor). A fourth factor, teaching writing creativity (coefficient alpha = .80), accounted for 5% of the variance (two items: teach writing creativity and teach writing vocabulary). The fifth factor, providing extra writing assistance (coefficient alpha = .84), accounted for 4% of the variance (10 items: e.g., provide enrichment activities to support students' writing, teacher conferencing). The final factor, facilitating text revision (coefficient alpha = .76), accounted for 3% of the variance (three items: students edit, revise, and share their writing). The score for each factor was the average score of its items.

Time devoted to writing Teachers were asked three questions about time and writing instruction. Teachers were asked to report how much time during an average week they taught writing skills and processes to their students as well as how much time during an average week their students spent writing text that was a paragraph or longer. They were further asked to report how much time each day their students spent completing writing homework.

Teachers' beliefs

Beliefs about preparation to teach writing Three items assessed teachers' beliefs about the adequacy of their preservice, in-service, and personal preparation to teach writing. Teachers responded to these items using a four point Likert-type scale (none, minimal, adequate, and extensive; scores ranged from 0 for none to 3 for extensive). A factor analysis using these three items yielded a single factor solution, with an eigenvalue of 1.90, accounting for 63% of the variance (coefficient alpha = .70). The score for preparation to teach writing was the average score of the three items.

Attitude towards writing Three items asked teachers' about their attitude towards writing (I like to write; I am good at writing; I write often). Teachers responded to these items using a six point Likert-type scale (strongly disagree [1.0], moderately disagree [2.0], slightly disagree [3.0], slightly agree [4.0], moderately agree [5.0], and strongly agree [6.0]; higher scores provided a more positive response). A factor analysis using these three items produced a single factor solution, with an eigenvalue of 2.41, accounting for 80% of the variance (coefficient alpha = .88). The score for attitude towards writing was the average score of the three items.

Attitude towards teaching writing Four items assessed teachers' attitude towards teaching writing (I enjoy teaching writing; teaching writing gives me a lot of personal satisfaction; I like to teach writing because it makes me feel good to do so; teaching writing is its own reward). Teachers responded to these items using a six point Likert-type scale (strongly disagree [1.0], moderately disagree [2.0], slightly disagree [3.0], slightly agree [4.0], moderately agree [5.0], and strongly agree [6.0]; higher scores provided a more positive response). A factor analysis using these four items resulted in a single factor solution, with an eigenvalue of 3.45, accounting for

86% of the variance (coefficient alpha = .95). The score for attitude towards teaching writing was the average score of the four items.

Teacher-efficacy Eight items assessed teachers' efficacy for teaching writing. Items asked if teachers had effective ways to teach writing, knew how to increase student retention in writing, could help students with the most difficult writing problems, could adjust a writing assignment to a student's level, knew how to redirect disruptive behavior during writing time, knew the steps for teaching a writing concept so it could be mastered quickly, could exert extra effort to help a student write better, and could accurately assess if a writing assignment was at the correct level of difficulty. Teachers responded to these items using a six point Likert-type scale (strongly disagree [1.0], moderately disagree [2.0], slightly disagree [3.0], slightly agree [4.0], moderately agree [5.0], and strongly agree [6.0]; higher scores provided a more positive response). A factor analysis using these eight items resulted in a single factor solution, with an eigenvalue of 4.00, accounting for 50% of the variance (coefficient alpha = .85). The score for teacher-efficacy was the average score of the eight items.

Students' progress as writers Five items assessed teachers' beliefs about students' progress as writers, asking if students: (1) made little progress as writers this school year; (2) understanding of writing changed considerably this school year; (3) made more than 1 year's gain in writing this school year; (4) became better writers than other students the same age; and (5) showed little change in their understanding of how to write. Scores for items 1 and 5 were reversed prior to analyses. Teachers responded to these items using a six point Likert-type scale (strongly disagree [1.0], moderately disagree [2.0], slightly disagree [3.0], slightly agree [4.0], moderately agree [5.0], and strongly agree [6.0]; higher scores provided a more positive response). A factor analysis using these five items yielded a single factor solution, with an eigenvalue of 2.90, accounting for 58% of the variance (coefficient alpha = .82). The score for student progress was the average score of the five items.

Epistemological beliefs about approaches to teaching writing Twelve items measured teachers' epistemological beliefs about how best to teach writing (see Graham et al., 2002). These items were designed to assess two orientations towards teaching writing: an explicit instruction orientation (emphasizing teaching of skills, strategies, and processes to enhance writing development) and a natural learning orientation (emphasizing the use of informal and incidental teaching methods to enhance writing development). Teachers responded to these items using a six point Likert-type scale (strongly disagree [1.0], moderately disagree [2.0], slightly disagree [3.0], slightly agree [4.0], moderately agree [5.0], and strongly agree [6.0]; higher scores provided a more positive response).

A factor analysis using the 12 items described above, using an oblique rotation, produced a three factor solution accounting for 50% of the variance. One item (children need to practice writing Chinese characters to learn how to write) did not load at .40 or greater on the pattern matrix on the three factors. The first factor, explicit instruction orientation, consisted of seven items (all loadings greater than .42), accounting for 23% of the variance (eigenvalue = 2.53) with a coefficient alpha of .65. The seven items were: (1)it is important to teach children how to plan and revise; (2) teachers should correct students' writing mistakes; (3) teachers should

aim to teach students to write compositions with no errors; (4) writing cannot be learned unless it is taught; (5) before children begin a writing task, teachers should remind them to use correct spelling, grammar, and punctuation; (6) A good way to begin writing instruction is to have children copy good models of each type of writing; and (7) being able to label words according to grammatical function is useful in proficient writing. The second factor, natural learning orientation, included two items (all loadings greater than .83), accounting for 19% of the variance (eigenvalue = 2.13) with a coefficient alpha of .67. The two items were: (1) students who read frequently will not need formal writing instruction; and (2) students who write frequently will not need formal writing instruction. The third factor included two items but coefficient alpha was .40, so this factor was dropped from any further consideration. The two remaining factors (explicit learning orientation and natural learning orientation) were consistent with the theoretical underpinning for this scale (Graham et al., 2002). The score for each factor was the average score of its items.

Epistemological beliefs about knowing and becoming a good writer Thirty items measured teachers' beliefs about how one becomes a good writer and knows about writing. This scale drew on items from previous measures of epistemology (Chan & Elliott, 2004a; Li, 2002, 2003; Schraw & Olafson, 2002) which were adopted to focus on writing. It addressed the following dimensions of epistemological beliefs about writing: innate/fixed (e.g., some people are born with special gifts and writing talents), learning effort/process (e.g., becoming a good writer takes a lot of effort), experts/authority (e.g., experts know more about teaching writing than I do, so I rely on their judgment), certain knowledge (e.g., what is considered good writing today will be considered good writing tomorrow), and heart and mind (e.g., people should train their mind to overcome difficulties when writing). Items addressing heart and mind were included as they address an important cultural belief in Asian cultures: perseverance (Li, 2002). Teachers responded to these items using a six point Likert-type scale (strongly disagree [1.0], moderately disagree [2.0], slightly disagree [3.0], slightly agree [4.0], moderately agree [5.0], and strongly agree [6.0]; higher scores provided a more positive response).

A factor analysis of the 30 items included in this scale, using an oblique rotation, resulted in a four factor solution accounting for 39% of the variance. Twelve items did not load on any factor at .40 or above (and were removed from any further analyses). One factor, effort and process (coefficient alpha = .71), accounting for 6% of the variance, included six items (how well you write depends mostly on your effort; if one tries hard enough, once can become a good writer; with practice one can become a good writer; writing success is related to how much time students spend writing; there is no limit to how good a writer one can become; people should put their heart fully in becoming the best writer they can become). Four of these items were initially developed to reflect learning effort/process; two items were designed to assess heart and mind. Even so, they provided a conceptually consistent representation of the importance of effort and process in learning to become a good writer.

A second factor, experts and authority (coefficient alpha = .77), accounting for 17% of the variance, involved four items (I have no doubt that what experts say about writing is correct; experts know more about teaching writing than I do, so I rely on their judgement; I still believe in what experts say about teaching writing

even if it differs from what I know; what is considered good writing today will be considered good writing tomorrow). Three of these items were designed to reflect experts/authority, and one item to assess certain knowledge. These four items, however, were conceptually consistent with the concept that knowledge about writing involves external sources separate from the experiences of teachers and their students.

A third factor, fixed learning and knowledge (coefficient alpha = .77), accounting for 12% of the variance, included seven items (people cannot do much about how well they write; there isn't much you can do to make your writing better as your ability is fixed at birth; really good writers don't have to learn to write; if two people score a students' writing differently, at least one of them must be wrong; knowledge about writing is certain and does not change; knowledge about teaching writing is certain and does not change; I believe that the best way to teach writing is to follow school or district guidelines). Three of these items were initially designed to assess an innate/fixed view of writing, three items were developed to measure certain knowledge, and one item to assess experts/authority. Collectively, these items reflect a view that writing development and knowledge are fixed.

The fourth factor consisted of two items (addressing innate writing capabilities), accounting for 4% of the variance, but coefficient alpha was .58, so this factor was dropped from any further consideration.

We had anticipated that the scale would yield the following five dimensions of epistemological beliefs about writing: effort/process, experts/authority, innate/fixed, certain knowledge, and heart and mind. Our analyses, however, produced only three reliable constructs, with two of the observed constructs (effort/process, experts/authority) providing a good match to two our hypothesized constructs, and the third construct (fixed learning/knowledge) combing two of hypothesized constructs (innate/fixed, certain knowledge). The score for each factor was the average score of its items.

Procedures

A random sampling procedure, stratified by grade level (1, 2, and 3) was used to select schools from across Taiwan to participate in the study. In each school the survey was distributed to two randomly selected teachers at each primary grade (i.e., 1, 2, and 3). Teachers received a packet including an introductory letter explaining the nature and purpose of the study, inviting them to participate in the study. The packet also included a letter indicating that 100 randomly selected teachers who participated in the study would receive a thank you gift equal to 6.5 U.S. dollars. Finally, the packet included the survey which teachers were asked to complete in 2 weeks as well as a stamped envelope in which to seal and return the completed survey.

The introductory letter indicated we were conducting a survey to learn about how writing is taught and what teachers believe about writing and writing instruction. The letter asked teachers to answer questions honestly, and emphasized that their responses would not be shared with other school personnel and would remain anonymous. Two trained university students entered all data into an excel file

independently. Inter-coder agreement was 99%. Each disagreement found was corrected after reexamining the survey.

Results

RQ1: How much time is devote to teaching writing?

Thirty-seven percent of teachers indicated they had writing class every day. Ten percent of teachers taught writing every other day, with 25% holding writing classes once a week, 10% once every 2 weeks, 6% once every 3 weeks, and 9% once a month. The average length of a writing class was 52 min ($SD = 36.8$). Teachers reported they spent 81 min ($SD = 63.7$) a week teaching writing skills and processes, and their students spent 39 min a week ($SD = 32$) writing paragraph length or longer text at school. Teachers further reported that students were expected to spent 28 min a day on writing homework ($SD = 15.6$). There were no statistical differences by grade for reported time teaching writing skills and processes, writing paragraph length or longer text at school, or completing writing homework (all p's $> .19$).

RQ2: What types of writing are assigned to students?

The two most common types of writing teachers asked students to do were diary writing and writing in response to reading, with a majority of teachers assigning these tasks at least monthly (see Table 1). The majority of teachers assigned writing a personal narrative at least once every 2 months, story writing at least once every 2 months, and opinion writing, informative writing, and writing poems at least several times a year. There was considerable variability in how often teachers assigned each of these types of writing (see Table 1). Further, grade-level was related to the average score for these seven items ($F = 34.21$, $df = 2777$, $p < .001$), as third grade ($M = 2.22$; $SD = .83$) had statistically higher scores than second grade ($M = 1.91$; $SD = .86$), which had statistically higher scores than first grade ($M = 1.59$; $SD = .93$).

RQ3: How is writing taught?

Teachers were asked to indicate how often they used 39 instructional procedures to teach or support students' writing. These items are grouped in Table 2 by the six different types of instructional constructs identified in our factor analysis (the 10 items that did not load on one of these factors are included as "Other"). For all items, there was considerable variability evident.

Teachers identified facilitating text revision as the most common type of instructional activities they applied, with the three instructional procedures representing this construct (revising own writing, editing own revising, and sharing writing with others) applied at least weekly. The next most common type of instructional activity teachers reported using was supporting writing ideation, with a majority of teachers indicating they provided suggestions on students'

papers at least several times a week, and had students plan papers and use graphic organizers for generating and organizing writing ideas at least weekly.

Teaching elements of writing and teaching writing creativity were the next most common types of instructional activities reported by teachers, with each occurring at about the same frequency. When teaching elements of writing, a majority of teachers indicated they taught students rhetorical devices, paragraph skills, and how to write descriptions at least weekly, with reteaching skills and strategies as well as teaching how to construct a beginning and ending to a paper each occurring at least once a month. When teaching writing creativity, a majority of teachers taught vocabulary at least weekly and creativity at least monthly.

Promoting writing collaboration and providing extra writing assistance were the least frequently occurring types of instructional activities, with each occurring at about the same rate. When promoting writing collaboration, a majority of teachers modeled good team work, had students help classmates, and work in pairs at least monthly. Extra writing classes after school occurred at least once every 2 months in a majority of classes. When providing extra writing assistance, the most common instructional procedures were teaching sentence and punctuation skills, which occurred at least several times a week in a majority of classes. This was followed by enrichment activities, teacher conferencing, and peer conferencing which occurred at least monthly. Emulating models of good writing occurred at least once every 2 months in a majority of classes, but teachers sharing their own writing, students writing at home with parental assistance, students reading their writing to parents, and teacher/parent communication occurred only a couple of times a year.

Grade-level was not statistically related to mean scores for facilitating text revision, promoting writing collaboration, and providing extra writing assistance (all p's > .19). Grade level was statistically related to mean scores for supporting writing ideation ($F = 65.10$, $df = 2778$, $p < .001$) as were teaching writing elements ($F = 34.21$, $df = 2778$, $p < .001$) and teaching writing creativity ($F = 41.73$, $df = 2778$, $p < .001$). For supporting writing ideation, third grade ($M = 4.64$; $SD = .91$) had statistically higher scores than second ($M = 3.79$; $SD = 1.19$) and first grades ($M = 3.54$; $SD = 1.35$). For teaching writing elements, third grade ($M = 3.50$; $SD = 1.36$) had statistically higher scores than second grade ($M = 3.08$; $SD = 1.08$), which had statistically higher scores than first grade ($M = 2.75$; $SD = 1.36$). With teaching writing creativity, third grade ($M = 4.30$; $SD = 1.21$) had statistically higher scores than second grade ($M = 3.57$; $SD = 1.37$), which had statistically higher scores than first grade ($M = 3.24$; $SD = 1.55$).

For the other instructional procedures that were not part of one of the six types of instructional activities above (see Table 2), one occurred at least weekly in a majority of classes (teaching Chinese characters). Six other activities occurred at least monthly in a majority of classes: teaching text structure, teaching imagery, assigning homework, student using rubrics for evaluation, using the library when writing, and publishing writing. Students were taught planning and revising strategies, and used computers when writing at least once every 2 months in a majority of classes. Teachers indicated they rarely demonstrated that they enjoyed writing. Finally, they used a variety of instructional materials, including textbooks (96%),

teacher-designed materials (49%), school-based materials (26%, and commercial materials (25%).

RQ4: Do teachers' beliefs predict writing practices?

Analysis

We begin our analysis by examining how teachers responded to each of the beliefs assessed in this study (i.e., beliefs about preparation to teach writing, attitude towards writing, self-efficacy, attitude towards teaching writing, student progress as writers, importance of explicit instruction orientation, importance of natural learning orientation, effort/process in writing success, knowledge of writing stemming from experts/authority, and writing learning/knowledge are fixed). Next, we share the correlations between these beliefs and reported writing practices (i.e., types of writing, teaching elements of writing, promoting writing collaboration, supporting writing ideation, teaching writing creativity, providing extra writing assistance, and facilitating text revision). Finally, we present the results from seven hierarchical regression analyses. Each hierarchical regression examined the collective and unique contribution of the teacher beliefs identified above in predicting one of the reported writing practices (e.g., types of writing) after first controlling for the control variables (gender, class size, instructional time, and years spent teaching in the primary grades). For each regression analysis, predictor variables were centered to ensure a meaningful zero point. Multicollinearity did not appear to be problematic in any of the seven analyses, as predictors were not highly correlated (see Table 3) and multicollinearity statistics (e.g., Tolerance and VIF) were all acceptable.

For all but one regression analyses, we used time spent teaching writing each week as the control measure of instructional time. The exception involved type of writing task. We used time spent writing paragraph or longer material each week for this analysis. For four analyses (types of writing, teaching elements of writing, supporting ideation, and teaching creativity), we also used grade as a control variable, as grade was related to teachers use of these practices (see RQ2 and RQ3). The largest differences by grade were between grades 3 and the two lower grades. Thus, we created a dummy variable for grades 3 versus grades 1 and 2. Statistics for all control and predictor variables are reported elsewhere in the article, except for class size ($M = 24.\ 30$; $SD = 5.79$).

Teachers' beliefs

Before presenting statistics for teacher beliefs, we remind readers that preparation to teach writing was assessed with a four point Likert-type scale (none [0.0], minimal [1.0], adequate [2.0], and extensive [3.0]). All other teacher beliefs were assessed with a six point Likert-type scale (strongly disagree [1.0], moderately disagree [2.0], slightly disagree [3.0], slightly agree [4.0], moderately agree [5.0], and strongly agree [6.0]; higher scores provided a more positive response).

Table 3 Correlations between reported writing practices and teacher beliefs

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
1. Types of writing	–																
2. Teaching elements	.428**	–															
3. Collaboration	.329**	.294**	–														
4. Support ideation	.312**	.435**	.385**	–													
5. Teach creativity	.286**	.414**	.372**	.933**	–												
6. Extra assistance	.484**	.621**	.436**	.279**	.273**	–											
7. Facilitate revision	.242**	.361**	.446**	.486**	.456**	.375**	–										
8. Preparation	.173**	.227**	.246**	.211**	.202**	.272**	.270**	–									
9. Learn/know fixed	.057	−.093**	.083*	−.093**	−.062	.056	−.098**	−.027	–								
10. Knowl exp/auth	−.029	−.065	−.037	−.025	−.026	−.022	−.045	−.037	.296**	–							
11. Effort/proc wr suc	.088*	.113**	.158**	.119**	.103**	.159**	.139**	.164**	.034	.366**	–						
12. Attitude/writing	.289**	.203**	.225**	.209**	.190**	.251**	.235**	.399**	−.023	−.051	.221**	–					
13. Attitude/teach writ	.210**	.147**	.247**	.157**	.182**	.255**	.247**	.361**	−.028	.016	.354**	.543**	–				
14. Teacher-efficacy	.174**	.167**	.216**	.216**	.219**	.269**	.302**	.349**	−.068	.055	.351**	.370**	.541**	–			
15. Student progress	.226**	.167**	.239**	.208**	.225**	.238**	.251**	.328**	−.048	−.016	.211**	.322**	.539**	.436**	–		
16. Explicit inst orient	.003	.125**	.083*	.098**	.088*	.192**	.072*	.087*	.258**	.365**	.305**	.026	.061	.266**	.068	–	
17. Nat learn orient	.090*	−.020	.064	−.096**	−.089*	.092**	−.065	.002	.535**	.085*	−.042	.066	−.016	−.096**	−.066	.063	–

(Symmetrical)

Teaching elements = teaching elements of writing; Collaboration = promoting writing collaboration, Support ideation = supporting writing ideation, Teach creativity = teaching writing creativity, Extra assistance = providing extra writing assistance, Facilitate revision = facilitating text revision, Preparation = preparation to teach writing, Learn/know fixed = writing learning/knowledge are fixed, Knowl exp/auth = knowledge of writing stemming from experts/authority, Effort/proc wr suc = effort/process in writing success, Attitude/writing = attitude towards writing, Attitude/teach writ = attitude towards teaching writing, Teacher-efficacy = teacher-efficacy to teach writing, Student progress = student progress as writers, Explicit inst orient = importance of explicit instruction orientation, Nat learn 0rient = importance of natural learning orientation

*$p < .05$. **$p < .01$. ***$p < .001$

As a group, teachers indicated they were not adequately prepared to teach writing ($M = 1.40$; $SD = .52$), but they were slightly positive about their own writing ($M = 3.67$; $SD = .87$), efficacy to teach writing ($M = 4.24$; $SD = .51$), attitude towards teaching writing ($M = 3.80$; $SD = .89$), and their students' progress as writers ($M = 3.90$; $SD = .61$).

When asked about their epistemological orientation on how best to teach writing, teachers slightly agreed on the importance of explicit instruction ($M = 3.88$; $SD = .53$), but slightly disagreed on the importance of a natural learning approach ($M = 2.52$; $SD = .75$). They were more positive about explicit instruction than natural learning, $F\ (1871) = 1848.19$, $p < .001$.

When asked about their epistemological beliefs about knowing and becoming a good writer, teachers slightly disagreed that learning and knowledge in writing are fixed ($M = 2.60$; $SD = .57$), but slightly agreed that effort and process are important to becoming a good writer ($M = 4.27$; $SD = .59$). They slightly agreed that knowledge about writing comes from experts and authority figures ($M = 3.71$; $SD = .64$). Teachers' beliefs about these three constructs differed statistically, $F\ (1871) = 1848.19$, $p < .001$. Scores for effort/process were higher than scores for expert/authority ($p < .001$) and learning/knowledge are fixed ($p < .001$). Expert/authority scores were higher than learning/knowledge are fixed scores ($p < .001$).

Grade-level was not statistically related to attitude towards writing, teacher efficacy, importance of explicit and natural learning approaches, and fixed learning/knowledge, effort/process, and expert/authority (all p's $> .10$). Grade level was statistically related to beliefs about preparation ($F = 3.72$, $df = 2777$, $p = .025$), attitude towards teaching writing ($F = 9.30$, $df = 2778$, $p < .001$), and student progress ($F = 12.15$, $df = 2778$, $p < .001$). First grade teachers ($M = 1.47$; $SD = .52$) indicated they were better prepared than third grade teachers ($M = 1.36$; $SD = .52$). First ($M = 3.90$; $SD = .82$) and second grade teachers ($M = 3.89$; $SD = .84$) were more positive about teaching writing than third grade teachers ($M = 3.61$; $SD = .95$). Second grade teachers ($M = 4.06$; $SD = .61$) indicted they were more positive about student progress than first ($M = 3.85$; $SD = .61$) and second grade teachers ($M = 3.82$; $SD = .58$).

Correlations between teachers' beliefs and reported writing practices

As can be seen in Table 3, small but statistically significant correlations were obtained between all seven reported writing practices (i.e., types of writing, teaching elements of writing, promoting writing collaboration, supporting writing ideation, teaching writing creativity, providing extra writing assistance, and facilitating text revision) and teachers' beliefs about preparation to teach writing (.17 to .27), attitude towards writing (.19 to .29), self-efficacy (.17 to .30, attitude towards teaching writing (.15 to .26), and student progress as writers (.17 to .25). Beliefs about effort/process in writing success was also statistically related to all seven reported writing practices (.09 to .16), while writing learning/knowledge are fixed was negatively and statistically related to teaching elements of writing (−.09), promoting writing collaboration (−.08), supporting writing ideation (−.09), and facilitating text revision (−.10). In contrast, writing knowledge stems from expert/authority was

not statistically related to any of the seven reported writing practices. Beliefs about the importance of explicit instruction were statistically related to all seven reported writing practices (.09 to .13), except for types of writing. Beliefs about the importance of natural learning in writing were statistically and positively related to types of writing (.09) and providing extra writing assistance (.09), but negatively and statistically related to supporting writing ideation (−.10) and teaching writing creativity (−.09).

Regression analysis for types of writing

The control variables (which included grade) accounted for a statistically significant 9% of the variability ($p < .001$) in how frequently students engaged in different types of writing ($M = 1.92$; $SD = .91$). The ten teacher beliefs, when entered at step 2, explained an additional statistically significant 13% of the variance ($p < .001$). Statistically significant unique predictors (see Table 4), controlling for all other variables

Table 4 Multiple regression analysis for types of writing

	B	*SE*	*β*	*t*	*p*
Model 1					
Constant	1.327	.301		4.410	.000
Gender	.071	.130	.021	.549	.583
Class size	−.002	.006	−.012	−.316	.752
Years spent teaching	−.008	.005	−.058	−1.525	.128
Time spent writing paragraph or longer text	.005	.001	.179	4.911	.000
Grade taught	.213	.036	.228	5.875	.000
Model 2					
Constant	1.480	.283		5.222	.000
Gender	.066	.122	.020	.544	.587
Class size	−.006	.006	−.040	−1.142	.254
Years spent teaching	−.010	.005	−.073	−1.990	.047
Time spent writing paragraph or longer text	.004	.001	.125	3.625	.000
Grade taught	.239	.035	.257	6.928	.000
Preparation	.108	.068	.063	1.592	.112
Learning/knowledge are fixed	.054	.070	.034	.774	.439
Knowledge is from experts and authority	−.025	.055	−.018	−.453	.651
Effort/process in writing success	.004	.061	.003	.067	.947
Attitude towards writing	.169	.044	.166	3.846	.000
Attitude towards teaching writing	.055	.050	.054	1.088	.277
Teacher-efficacy	.068	.078	.039	.873	.383
Student progress	.206	.061	.141	3.382	.001
Explicit learning orientation	−.061	.066	−.036	−.927	.354
Natural learning orientation	.118	.049	.100	2.405	.016

Coefficients are standardized; Grade taught = contrast between grades 3 versus grades 1 and 2

in the model, included grade, attitudes toward writing, belief that a natural learning approach is important to teaching writing, amount of time students wrote paragraph or longer material, student progress, and years spent teaching. There was a negative relation between types of writing and years teaching the primary grades, indicating teachers with more experience were less likely to assign the types of writing underlying this construct.

Regression analysis for teaching elements of writing

The control variables (including grade) accounted for a statistically significant 9% of the variability ($p < .001$) in how often teachers reported teaching elements of writing ($M = 3.13$; $SD = 1.27$). The ten teacher beliefs, when entered at step 2, explained an additional statistically significant 10% of the variance ($p = .026$). Statistically significant unique predictors (see Table 5), controlling for all other variables in the model, included time spent teaching writing, grade taught, preparation to

Table 5 Multiple regression analysis for teaching elements of writing

	B	*SE*	*β*	*t*	*p*
Model 1					
Constant	2.361	.422		5.599	.000
Gender	− .218	.185	− .046	− 1.178	.239
Class size	.017	.008	.075	2.055	.040
Years spent teaching	.001	.007	.007	.194	.847
Time spent teaching writing	.004	.001	.180	4.930	.000
Grade taught	.281	.051	.213	5.497	.000
Model 2					
Constant	2.570	.405		6.343	.000
Gender	− .160	.177	− .034	− .903	.367
Class size	.008	.008	.034	.940	.348
Years spent teaching	− .003	.007	− .019	− .498	.619
Time spent teaching writing	.003	.001	.143	4.039	.000
Grade taught	.286	.050	.218	5.766	.000
Preparation	.346	.098	.143	3.526	.000
Learning/knowledge are fixed	− .216	.102	− .095	− 2.109	.035
Knowledge is from experts and authority	− .158	.079	− .082	− 2.005	.045
Effort/process in writing success	.106	.088	.050	1.213	.226
Attitude towards writing	.105	.064	.073	1.648	.100
Attitude towards teaching writing	.016	.073	.011	.218	.827
Teacher-efficacy	.047	.113	.019	.417	.677
Student progress	.155	.087	.076	1.778	.076
Explicit learning orientation	.318	.097	.133	3.284	.001
Natural learning orientation	.112	.071	.067	1.573	.116

Coefficients are standardized; Grade taught = contrast between grades 3 versus grades 1 and 2

teach writing, belief that explicit instruction is important to teaching writing, belief that learning/knowledge are fixed, and belief that knowledge about writing stems from experts and authority figures. There was a negative relation between teaching elements of writing and (1) learning/knowledge are fixed and (2) knowledge comes from experts/authority, indicating teachers who expressed greater agreement with these beliefs were less likely to teach elements of writing.

Regression analysis for promoting writing collaboration

The control variables accounted for a non-statistically significant .20% of the variance ($p = .798$) in how frequently teachers promoted writing collaboration ($M = 2.47$; $SD = 1.32$). The ten teacher beliefs, when entered at step 2, explained a statistically significant 14% of the variance ($p < .001$). Statistically significant unique predictors (see Table 6), controlling for all other variables, included preparation to teach writing, belief about students' progress as writers, belief that knowledge of writing stems from experts/authority figures, and belief that effort/process are important to writing success. There was a negative relation between

Table 6 Multiple regression analysis for promoting writing collaboration

	B	SE		*t*	*p*
Model 1					
Constant	2.295	.411		5.586	.000
Gender	.048	.193	.010	.251	.802
Class size	.006	.009	.027	.706	.480
Years spent teaching	.000	.008	.001	.028	.978
Time spent teaching writing	− .001	.001	− .040	− 1.057	.291
Model 2					
Constant	2.658	.390		6.820	.000
Gender	.050	.181	.010	.278	.781
Class size	− .003	.008	− .015	− .410	.682
Years spent teaching	− .008	.007	− .040	− 1.072	.284
Time spent teaching writing	− .001	.001	− .069	− 1.896	.058
Preparation	.391	.105	.155	3.731	.000
Learning/knowledge are fixed	.146	.109	.062	1.338	.181
Knowledge is from experts and authority	− .210	.084	− .104	− 2.507	.012
Effort/process in writing success	.187	.093	.085	2.006	.045
Attitude towards writing	.053	.067	.035	.783	.434
Attitude towards teaching writing	.071	.076	.048	.928	.354
Teacher-efficacy	.146	.120	.057	1.214	.225
Student progress	.296	.093	.139	3.173	.002
Explicit learning orientation	.116	.103	.046	1.125	.261
Natural learning orientation	.092	.076	.053	1.200	.230

Coefficients are standardized

promoting collaboration and the belief that knowledge comes from experts/authority, indicating teachers who expressed greater agreement with this belief were less likely to promote collaboration.

Regression analysis for supporting writing ideation

The control variables (including grade) accounted for a statistically significant 15% of the variance ($p < .001$) in how often teachers supported ideation ($M = 4.02$; $SD = 1.26$). The ten teacher beliefs, when entered at step 2, explained an additional statistically significant 11% of the variance ($p < .001$). Statistically significant unique predictors (see Table 7), controlling for all other variables in the model, included grade taught, preparation to teach writing, and student progress.

Table 7 Multiple regression analysis for supporting writing ideation

	B	SE		t	*p*
Model 1					
Constant	2.498	.406		6.145	.000
Gender	.110	.178	.023	.616	.538
Class size	.017	.008	.076	2.157	.031
Years spent teaching	− .005	.007	− .027	− .738	.461
Time spent teaching writing	.001	.001	.062	1.769	.077
Grade taught	.495	.049	.377	10.072	.000
Model 2					
Constant	2.796	.385		7.267	.000
Gender	.144	.168	.030	.855	.393
Class size	.005	.008	.024	.703	.483
Years spent teaching	− .010	.007	− .054	− 1.541	.124
Time spent teaching writing	.000	.001	.022	.663	.507
Grade taught	.514	.047	.391	10.905	.000
Preparation	.301	.093	.125	3.229	.001
Learning/knowledge are fixed	− .164	.097	− .072	− 1.688	.092
Knowledge is from experts and authority	.010	.075	.005	.133	.894
Effort/process in writing success	.053	.083	.025	.639	.523
Attitude towards writing	.109	.060	.076	1.800	.072
Attitude towards teaching writing	− .019	.069	− .013	− .270	.787
Teacher-efficacy	.206	.107	.084	1.930	.054
Student progress	.282	.083	.138	3.398	.001
Explicit learning orientation	.173	.092	.072	1.882	.060
Natural learning orientation	− .054	.068	− .032	− .797	.426

Coefficients are standardized; Grade taught = contrast between grades 3 versus grades 1 and 2

Regression analysis for teaching writing creativity

The control variables (which included grade) accounted for a statistically significant 10% of the variability ($p < .001$) in how often writing creativity was taught ($M = 3.73$; $SD = 1.44$). The ten teacher belief variables, when entered at step 2, explained an additional statistically significant 10% of the variance ($p < .001$). Statistically significant unique predictors (see Table 8), controlling for all other variables, included grade, preparation to teach writing, and student progress.

Regression analysis for providing extra writing assistance

The control variables accounted for a non-statistically significant 1% of the variability ($p = .358$) in how often extra writing assistance was provided ($M = 2.39$; $SD = .96$). The ten teacher variables, when entered at step 2, explained an additional statistically significant 17% of the variance ($p < .001$). Statistically significant

Table 8 Multiple regression analysis for teaching writing creativity

	B	*SE*	*β*	*t*	*p*
Model 1					
Constant	2.077	.480		4.327	.000
Gender	.146	.210	.027	.694	.488
Class size	.018	.009	.070	1.923	.055
Years spent teaching	.002	.008	.009	.242	.809
Time spent teaching writing	.001	.001	.052	1.434	.152
Grade taught	.477	.058	.316	8.214	.000
Model 2					
Constant	2.384	.460		5.186	.000
Gender	.175	.201	.032	.871	.384
Class size	.006	.009	.022	.611	.542
Years spent teaching	− .003	.008	− .014	− .392	.695
Time spent teaching writing	.000	.001	.015	.432	.666
Grade taught	.509	.056	.337	9.043	.000
Preparation	.286	.111	.103	2.569	.010
Learning/knowledge are fixed	− .058	.116	− .022	− .504	.614
Knowledge is from experts and authority	− .026	.090	− .012	− .290	.772
Effort/process in writing success	.020	.099	.008	.201	.841
Attitude towards writing	.069	.072	.041	.950	.342
Attitude towards teaching writing	.064	.082	.039	.783	.434
Teacher-efficacy	.224	.128	.080	1.757	.079
Student progress	.337	.099	.143	3.396	.001
Explicit learning orientation	.133	.110	.048	1.209	.227
Natural learning orientation	− .104	.081	− .054	− 1.280	.201

Coefficients are standardized; Grade taught = contrast between grades 3 versus grades 1 and 2

unique predictors (see Table 9), controlling for all other variables in the model, included years spent teaching, preparation to teach writing, belief that knowledge about writing stems from experts and authority figures, teacher-efficacy, belief that explicit instruction is important to teaching writing, and belief that a natural learning approach is important to teaching writing. There was a negative relation between years teaching as well as providing extra writing assistance and belief that knowledge about writing stems from experts/authority, indicating teachers who had more teaching experience or believed that writing knowledge was the province of more competent others were less likely to provide extra writing assistance to their students.

Regression analysis for facilitating text revision

The control variables accounted for a statistically significant 4% of the variability ($p < .001$) in how often text revisions was facilitated ($M = 4.01$; $SD = 1.20$). The ten teacher beliefs, when entered at step 2, explained an additional statistically significant 13% of the variance ($p < .001$). Statistically significant unique

Table 9 Multiple regression analysis for providing extra writing assistance

	B	*SE*	*β*	*t*	*p*
Model 1					
Constant	2.276	.282		8.059	.000
Gender	.006	.133	.002	.049	.961
Class size	.002	.006	.010	.261	.794
Years spent teaching	− .003	.005	− .020	− .514	.608
Time spent teaching writing	.001	.001	.077	2.027	.043
Model 2					
Constant	2.484	.261		9.512	.000
Gender	.052	.122	.015	.430	.668
Class size	− .006	.006	− .038	− 1.067	.286
Years spent teaching	− .010	.005	− .074	− 2.012	.045
Time spent teaching writing	.001	.001	.044	1.238	.216
Preparation	.285	.070	.164	4.068	.000
Learning/knowledge are fixed	− .010	.073	− .006	− .139	.890
Knowledge is from experts and authority	− .134	.056	− .096	− 2.382	.017
Effort/process in writing success	.060	.063	.040	.961	.337
Attitude towards writing	.071	.045	.069	1.568	.117
Attitude towards teaching writing	.047	.051	.046	.926	.355
Teacher-efficacy	.196	.081	.111	2.437	.015
Student progress	.114	.062	.077	1.823	.069
Explicit learning orientation	.289	.069	.168	4.187	.000
Natural learning orientation	.143	.051	.119	2.790	.005

Coefficients are standardized

predictors (see Table 10), controlling for all other variables, included gender, time spent teaching writing, preparation to teach writing, student progress, and teacher efficacy.

Summary of the regression analyses

After accounting for variance related to the control variables, the ten teachers' beliefs accounted for 10% to 17% of the variance in teachers' reported writing practices (i.e., types of writing [13%], teaching elements of writing [10%], promoting writing collaboration [14%], supporting writing ideation [11%], teaching writing creativity [10%], providing extra writing assistance [17%], and facilitating text revision [13%]). Predictor variables that made a unique contribution (positive or negative) to predicting reported writing practices are presented in Table 11.

Table 10 Multiple regression analysis for facilitating text revision

	B	*SE*	*β*	*t*	*p*
Model 1					
Constant	2.710	.364		7.440	.000
Gender	.374	.171	.084	2.184	.029
Class size	.013	.008	.060	1.610	.108
Years spent teaching	.004	.007	.026	.669	.504
Time spent teaching writing	.003	.001	.141	3.761	.000
Model 2					
Constant	2.999	.346		8.677	.000
Gender	.406	.161	.091	2.525	.012
Class size	.003	.008	.016	.455	.649
Years spent teaching	− .002	.006	− .011	− .309	.757
Time spent teaching writing	.002	.001	.098	2.748	.006
Preparation	.285	.093	.125	3.065	.002
Learning/knowledge are fixed	− .163	.097	− .076	− 1.685	.092
Knowledge is from experts and authority	− .123	.074	− .068	− 1.652	.099
Effort/process in writing success	.069	.083	.035	.834	.404
Attitude towards writing	.093	.060	.069	1.559	.119
Attitude towards teaching writing	− .031	.068	− .023	− .455	.649
Teacher-efficacy	.394	.107	.171	3.693	.000
Student progress	.204	.083	.106	2.471	.014
Explicit learning orientation	.120	.091	.053	1.307	.192
Natural learning orientation	.017	.068	.011	.255	.799

Coefficients are standardized

Table 11 Predictor variables that accounted for unique variance in reported writing practices

	Prep	Fixed K	K E/A	Eff/Pro	AW	ATW	TE	*SP*	*EI*	NL
1. Types of writing					P			P		P
2. Teaching elements of writing	P	N	N						P	
3. Promoting writing collaboration	P		N	P				P		
4. Supporting writing ideation	P							P		
5. Teaching writing creativity	P							P		
6. Providing extra writing assistance	P		N				P		P	P
7. Facilitating text revision	P						P	P		

Prep preparation to teach writing, *Fixed K* writing learning/knowledge are fixed, *K E/A* knowledge of writing stemming from experts/authority, *Eff/pro* effort/process in writing success, *AW* attitude towards writing, *ATW* attitude towards teaching writing, *TE* teacher-efficacy to teach writing, *SP* student progress as writers, *EI* importance of explicit instruction orientation, *NL* importance of natural learning orientation, *P* positive relation with teacher reported practice, *N* negative relation with teacher reported practice., all P's and N's were statistically significant at the $p < .05$

Discussion

Even though a primary objective of schooling is to teach students how to write, there is considerable concern that students in many countries do not receive the writing instruction they deserve or need (Graham, 2019). An important step to improving writing instruction is to (1) document how students are taught to write and (2) identify malleable teacher factors that predict the type and amount of writing instruction students receive. The current study did just this as it examined (1) how teachers in Taiwan teach writing to grade one to three students; (2) teachers' beliefs about their own writing, teaching writing, and how one learns to write and knows about writing; and (3) if these beliefs account for variability in teachers' reported writing practices. This investigation provides additional information on the teaching of writing to young students beyond the U.S. and Europe where most prior studies with elementary grade students were conducted. Taiwan provides an interesting context for studying the teaching of writing, as it ranks sixth in educational attainment worldwide (based on reading, math, and science scores; PISA; http://www.oecd.org/pisa/) and it boasts a 99% rate of literacy. In addition, learning to write in Chinese is difficult, as Chinese logographs are complicated constructions (i.e., radicals constructed through a configuration of strokes), with complex orthographic-phonological rules (Yeung, Ho, Chan, & Chung, 2017). As a result, it is possible that early writing instruction in Taiwan differs in important ways from writing instruction in other countries like the U.S.

Teaching writing in the primary grades in Taiwan

Despite the cultural, historical, social, institutional, and language differences that exist between Taiwan and other countries, three of the themes that dominate elementary-grade writing instruction in other nations were also evident in teaching writing to young students in Taiwan. First, like teachers in other countries (Graham, 2019), most primary grade teachers in Taiwan did not devote much time at school to the teaching of writing. As a group, most of the participating teachers indicated they taught writing infrequently. Five out of every eight teachers held a writing class every other day or less often, with one-half of all teachers reporting they taught writing once a week or less frequently. Even though mastering Chinese logographs is a challenging task (Yeung et al., 2017), teachers reported they spent little time teaching students how to write at school (81 min a week; 14 min a day), and they provided students with limited opportunities to produce paragraph length or longer text during school hours (39 min; 8 min a day). While teachers did report they applied a variety of different instructional activities to teach writing, two-thirds of these activities were applied once a month or less often by a majority of teachers. This relatively minimalist approach to teaching writing at school by most primary grade Taiwanese teachers mirrors how writing is commonly taught by most elementary grade teachers in other countries (e.g., Coker et al., 2016; Coker et al., 2018; Gilbert & Graham, 2010; Hertzberg & Roe, 2016: Koko, 2016; Rietdijk et al., 2018).

Additional survey and observational research is needed to replicate as well as extend our findings to other aspects of writing instruction (e.g., the use of writing to facilitate learning and comprehension of classroom material and text).

A second common theme of writing instruction worldwide that was replicated in the current study is that there is considerable variability in how writing is taught within a country, and some teachers devote more time and energy to writing instruction than others (e.g., Cutler & Graham, 2008; Wilcox et al., 2016). A sizable minority of teachers in this investigation (37%) reported they taught writing every day. A post-hoc examination revealed that these teachers devoted 152 min a week to the teaching of writing, as opposed to 96 min a week by teachers who reported teaching writing less often. Our post-hoc analysis also revealed that teachers who taught writing daily were more likely to teach the elements of writing, provide students with extra writing assistance, and facilitate text revision than teachers who indicated they taught less often (all $p's > .002$). Future research should query teachers about the factors that facilitate and constraints how much time they devote to the teaching of writing (e.g., school, district, national policies).

The findings from our study are consistent with a third theme evident in elementary writing instruction in other countries: less time is devoted to teaching writing as students move from the primary grades into higher grades (Graham, 2019). This was observed in the United States, where teachers reported spending almost an hour teaching writing each day in grades one to three (Cutler & Graham, 2008), but only 40 min a day in grades four to six (Gilbert & Graham, 2010). When the findings in the current study are compared with those from a survey studies conducted in Taipei City, the same pattern was evident. While 62% of primary grade teachers in this study taught writing at least once a week or more often, 80% of grade four to six teachers taught writing only once every 2 to 4 weeks in Hsiang and Graham (2016). While additional replication is needed (particularly because these two Taiwanese studies sampled teachers from different locations in Taiwan), our findings and those from other investigations raise a serious concern. At the end of third grade, students are far from mastering writing (Bazerman et al., 2018), so why is there a drop in the amount of time teachers devote to teaching writing as students move into the upper-elementary grades? Future research needs to query relevant stakeholders (teachers, administrators, and policy makers) to better understand the mechanics behind this surprising shift.

In addition to replicating these three themes, the current study extends what we know about how writing is taught in two important ways. First, the Taiwanese teachers in this study supplemented writing and writing instruction in school by having students engage in writing instructional activities at home. The average teacher in this study spent about 120 min per week on teaching writing at school (writing paragraph length or longer text plus teaching writing skills and processes), but they also assigned another 140 min of writing homework per week. In essence, they offloaded a considerable amount of their writing program to after school-hours. While the amount of writing homework teachers assign has not been commonly assessed in survey and observational studies, the amount assigned by teachers in this study is relatively large. For instance, a majority of primary grade teachers in the U.S. reported assigning writing homework once a month (Cutler & Graham, 2008).

Third and fourth grade U.S. teachers in another survey study indicated students were expected to do 32 min of writing homework a week (Brindle et al., 2016). Finally, a majority of fourth to sixth grade teachers in Taipei city reported assigning homework about once a month (Hsiang & Graham, 2016).

A post-hoc analysis revealed that teachers who taught writing each day (37% of the sample) assigned 155 min of writing homework. When this is coupled with the 152 min these teachers reportedly spent teaching writing at school, they met the What Works Clearinghouse guideline to devote 1 hour each day to the teaching of writing (Graham et al., 2012). Additional research is needed to replicate this finding, and to explore why teachers assign the writing homework they do.

This study further extends what we know about elementary writing instruction in the context of the Greater China region by providing additional nuance about its component structure. Our factor analysis of the 39 item instructional writing practice scale yielded six reliable factors: (1) teaching elements of writing (skills and processes), (2) providing extra writing assistance, (3) promoting writing collaboration, (4) supporting writing ideation, (5) teaching writing creativity, and (6) facilitating text revisions. A similar set of items were factor analyzed in a survey study by Hsiang and Graham (2016) with fourth to sixth grade urban teachers in the Greater China region. Their factor analysis produced a three factor solution: (1) teaching elements of writing (skills and processes), (2) providing extra writing support, and (3) facilitating the writing process. Collectively, these two analyses demonstrated that writing instruction in the primary and intermediate grades were similar. The first two factors in both studies measure the same basic constructs (containing many but not all of the same items). The two analyses also demonstrated that writing instruction across these grades differs, as the constructs underlying writing instruction in the earlier grades involves more constructs (or differentiation) than writing instruction in the intermediate grades. Additional study is needed to verify these findings across both grades and cultures.

There was considerable variability in how much time teachers devoted to teaching writing, how often they assigned specific types of writing, and how frequently they applied particular instructional procedures. This variability was consistent with the survey data from the two prior studies conducted in Taipei City with older students (Hsiang & Graham, 2016; Hsiang et al., 2018). Collectively, the findings from these three studies reflect a longstanding social cultural perspective (Graham, 2018): classrooms, even those with similar goals, vary considerably in their actions.

Although the findings from this study were consistent with our predictions, we thought it was possible that a more positive pattern of results might have been observed. We based this possibility on Taiwan's excellence on international exams in other areas (assuming this was at least in part due to strong teaching). There are multiple possibilities for why many teachers in this study did not devote more time and effort to teaching writing. One, Chinese teachers commonly view reading as more important than writing (OECD, 2011), and this belief may have lead some teachers to place greater emphasis on teaching reading than writing. Two, many Chinese teachers believe students learn to write through reading (Feng, 2010) and, as a result, some teachers may have placed less emphases on writing instruction. Three, it is possible that the teaching of writing was not emphasized as much,

because writing was not part of the international assessments that Taiwanese students complete.

Additional research is needed to replicate and extend the findings on writing instruction from this study, including observing writing instruction, focusing on different aspects of teaching writing (e.g., how teachers plan their writing lessons), and querying teachers about why they teach writing as they do.

Teachers' beliefs

It is commonly assumed that writing instruction is shaped by the beliefs of those teaching it (Graham & Harris, 2018), as beliefs serve as a guide for action and a filter for thinking about how writing instruction should proceed (Fives & Buehl, 2012). Previous studies have examined a variety of teacher beliefs about writing, including beliefs about preparation to teach writing (e.g., Gilbert & Graham, 2010), efficacy to teach writing (e.g., Rietdijk et al., 2018), attitudes toward writing and teaching it (e.g., Hsiang & Graham, 2016), and epistemological beliefs about the role of explicit instruction and natural learning process in writing instruction (e.g., Brindle et al., 2016; Graham et al., 2002). One important contribution of the current study is that we also assessed teachers' beliefs about their students' progress as writers as well as their epistemological beliefs about how one becomes a good writer and knows about writing. This required developing a scale to measure these constructs. Based on the data collected in this study, we provided evidence that supported the contention that the student progress scale was reliable and unidimensional, and that the our new epistemological scale reliably measured three separate beliefs about writing: effort and process are important to learning to write, knowledge of writing is determined by experts and authority, and writing knowledge and learning are fixed.

Another important contribution of the present study is that it examined all of the above beliefs with primary grade teachers. Almost all of the research examining teachers' writing beliefs have been conducted with teachers in grades four and above (see Graham et al., 2008a for an exception).

When we asked teachers in this study about their writing beliefs, they indicted they were not adequately prepared to teach writing, but they were slightly positive about their own writing, teaching students to write, their efficacy as writing teachers and students' progress as writers. In the two previous studies conducted in Taipei City (Hsiang & Graham, 2016; Hsiang et al., 2018), teachers of grade 4 to 9 students also slightly agreed that they were capable writing teachers and liked to teach writing, as did teachers in studies conducted in other countries (e.g., De Smedt et al., 2016; Margarida, Simao, Malpique, Frison, & Marques, 2016). The two previous studies that involved students from Taipei City, however, differed in terms of perceptions of preparation to teach writing, as grade 4 to 6 teachers were more positive about their preparation (Hsiang & Graham, 2016) and grade 7 to 9 teachers were more negative (Hsiang et al., 2018). Because this was the first study to ask teachers about students' progress as writers, we could not compare our findings to those from prior investigations.

In terms of epistemological beliefs, teachers in this study slightly agreed that explicit instruction was important to teaching writing, but slightly disagreed that naturalistic learning approaches were also important. This stands in contrast to findings with teachers in the U.S., as both explicit and naturalistic learning approaches were viewed positively (Brindle et al., 2016; Graham et al., 2002). Teachers in this and the prior studies, however, believed that explicit instruction was more important to teaching writing than natural learning approaches. Differences between U.S. and Taiwanese teachers may reflect cultural differences in how learning occurs (Li, 2002). Additional research is needed to replicate our findings, and to explore if and why beliefs about how best to teach writing exist across different societies and cultures.

When asked about their epistemological beliefs about how one becomes a good writer and how one knows about writing, teachers in our study slightly agreed that becoming a good writer is driven by learning and effort, but slightly disagreed that learning and knowing about writing are fixed. They slightly agreed that knowledge about writing is held by experts and authority figures. We cannot directly compare these findings with results from other writing studies, as there are no other investigations that assessed these beliefs in writing. Our findings are somewhat similar though to outcomes obtained in other studies that examined teachers' beliefs about learning and knowing more broadly. For instance, Chan and Elliott (2004a) reported that preservice teachers in Hong Kong slightly agreed that knowledge is acquired through learning and effort, and slightly disagreed that ability to learn is innate and knowledge is fixed and unchanging. In contrast to our study, they slightly disagreed that knowledge was handed down by authority figures and experts. Future research is needed to determine if our findings can be replicated as well as determine if such beliefs vary across cultures and why.

Teachers' beliefs predict their writing practices

The WWC model of writing (Graham, 2018) posits that teachers' classroom actions are shaped by their beliefs about writing. The findings from this study provided support for this theoretical proposition, as the writing beliefs assessed in this study collectively and statistically accounted for 10% to 17% of the variance in teachers' reported writing practices, after first controlling for instructional time, gender, years teaching the primary grades, class size, and grade (as appropriate). These findings are consistent with studies conducted in other countries with upper-grade elementary grade students (Brindle et al., 2016; Gilbert & Graham, 2010; Reitdijk et al., 2018) as well as studies that involved students in grades 4 to 9 in Taipei City and other urban locations in the Greater China region (Hsiang & Graham, 2016; Hsiang et al., 2018) that found that a more restricted set of beliefs predicted writing practices. They also provide the first evidence that teachers' beliefs predict a broad array of writing instructional practices reportedly implements by primary grade teachers (a previous study with primary grade students examined a much more limited set of instructional practices; Graham et al., 2008a).

It is important to note that all but one of the teacher belief predictors (attitude towards teaching writing) made a unique and statistically significant contribution to predicting at least one of teachers' writing practices. Two particularly robust predictors were beliefs about preparation to teach writing and students' writing progress. These two predictors made a positive and singular contribution to predicting almost all of the reported writing practices. In addition, teachers who were more self-efficacy were more likely to provide extra writing assistance and facilitate text revision, whereas teachers who were more positive about their own writing were more likely to assign the types of writing queried.

The epistemological beliefs made a unique and statistically significant contribution to predicting all but three of the writing instructional practices (i.e., supporting writing ideation, teaching writing creativity, and facilitating text revision). These contributions were both positive and negative. More specifically, teachers who most valued explicit instruction were more likely to teach writing elements and provide extra writing assistance, and teachers who most valued a natural learning approach were more likely to assign the different kinds of writing and provide extra writing assistance. Likewise, teachers who more strongly believed that one became a good writer through learning and effort were more likely promote writing collaboration. In contrast, teachers who professed a stronger view that writing knowledge came from experts and authorities were less likely to teach writing elements, promote writing collaboration, or provide extra writing assistance. Similarly, teachers who more strongly believed that learning and knowledge are fixed in writing were less likely to teach writing elements.

The findings from our study demonstrated that the relationships between teacher's beliefs about writing and their reported writing practices are complex. The beliefs examined in this study varied in the collective amount of variance accounted for in the different writing instructional practices (e.g., providing extra writing assistance and teaching elements of writing), and the unique contribution of these beliefs varied across the reported writing practices, as some beliefs (e.g., attitude toward one's own writing and efficacy to teach writing) made a unique and positive contribution to predicting only one writing practice, others made a unique and positive contribution to predicting multiple writing practices (preparation, student progress, explicit instruction, and natural learning), and still others made a unique and negative contribution to predicting one or multiple writing practices (learning/knowledge are fixed and knowledge comes from experts/authorities).

Additional research is needed to determine if the relationships observed in this study can be replicated in the same and different contexts. This includes conducting studies with older students and in different societies and cultures. While we offered possible reasons in the introduction to this article why specific predictors or control variables were related to particular instructional practices (e.g., teacher beliefs serve as a guide for action), it remains unclear why some aspects of writing and not others were uniquely predicted by the same or other teacher beliefs. One way to form a better understanding of the relationships between teachers' beliefs about writing and their instructional practices is to observe them as they teach and ask them why they instituted specific procedures and how their beliefs influenced these decisions. An important goal for research in this area is to refine as well as develop and test how teachers' beliefs interact with other variables to influence writing instruction in different cultures.

Limitations

The findings from this study were based on self-report measures. Although this is the most common approach for assessing teacher's beliefs, it is one of a number of approaches that can be applied to describing teachers' instructional practices. Additional research using observational and qualitative methods is needed to determine if similar findings are obtained when other methods are used.

While teachers in this study were asked about their writing practices across the year, this was done only once and different results may have been obtained if they were queried at different time points. We further focused almost exclusively on classroom writing practices, but it is important to keep in mind that what happens in a classroom is also influenced by institutional, political, social, cultural, and historical factors (Graham, 2018). Future studies like this one would benefit by applying an even larger lens to the study of writing practices in schools. We also assumed that teachers understood the basic constructs underlying each item in our survey. Field testing of the survey and drawing on previously used items and measures provided support for this contention, but these methods did not ensure that each item was understood in exactly the same way by all participating teachers.

Summary

The findings from the current study provide important and timely information on primary grade writing instruction that extends beyond the U.S. or European context. Even though Taiwanese children ranked sixth in educational attainment worldwide when reading, math, and science scores were averaged in the most recent PISA assessment (http://www.oecd.org/pisa/), the majority of Taiwanese teachers in this study did not place a strong emphasis on the teaching writing. Unfortunately, this is generally consistent with findings from other countries that do not score as high on PISA as does Taiwan.

The analysis from this study and other similar investigations are especially important if writing instruction is to improve. It is difficult to enhance writing instructional practices if data about how it is taught are not available. While the data from this study did not examine all aspects of writing instruction, it is clear that not enough time is spent writing or teaching writing in primary grade classrooms in Taiwan. This situation can be changed, and the data from this study provides information on specific features of writing instruction that require more emphasis.

While there are many factors that influence how writing is taught in Taiwan and other countries, teachers play an important role in how writing is enacted at the classroom level. Consequently, it is important to identify malleable teacher factors that are associated with how writing is taught. The manipulation of such variables may lead to better writing instruction. In this study, we found that teachers' beliefs about their own writing, preparation to teach writing, efficacy to teach writing, students' writing progress, as well as epistemological beliefs about writing instruction, how one becomes a good writer, and what constitutes writing knowledge predicted

how frequently specific writing activities were applied. This is the most extensive study to date examining teachers' beliefs and their writing practices, providing a broader range of malleable factors that are potentially important to enhancing classroom writing instruction, not only in Taiwan but in other countries as well. Of course, research is needed to determine if enhancing such beliefs results in positive changes in writing practices.

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