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Hong Kong secondary students' self-regulated learning strategy use and English writing: Influences of motivational beliefs

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1. Introduction

Writing is a crucial skill for achieving academic and vocational goals. Despite its importance, the majority of adolescents do not develop the writing competence needed to meet grade-level demands (Graham, Harris, & Mason, 2005). Four areas are proposed as keys to students' growth as writers, i.e., motivation, writing strategy use, knowledge, and skills (Limpo & Alves, 2013). Among them, motivation should assume a particularly prominent status given that writing is a very difficult and complex process and students need a high level of motivation for effective writing (Bruning & Horn, 2000). Thus, researchers have argued for an expansion of writing models to recognize the motivational variables more explicitly (Bruning & Horn,

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2000; Ryan & Deci, 2000). Therefore, this study aimed to examine the impacts of motivational beliefs on self-regulated learning (SRL) strategy use and writing competence among English as a second/foreign language (ESL/EFL) students in an Asian context, i.e., Hong Kong.

Although research on motivation in English writing in first language (L1) contexts has flourished, the field of motivation in ESL/EFL writing remains underexplored. Lee, Yu and Liu (2018) note that "second language (L2) writing motivation research is very much in its infancy" (p. 177). Given the important functions of English for further education and future employment, students in Asian regions and countries, e.g., Hong Kong, South Korea, and Malaysia, need to learn to write in English, which is particularly challenging for them. It is crucial to understand the influences of motivation on Asian ESL/EFL learners' English writing to inform teachers' practice and policy.

Moreover, sociocultural influences have been a topic of concern in motivation research. Researchers have proposed the need to take into account learners' own sociocultural contexts while implementing ESL/EFL writing programs (Lo & Hyland, 2007). Prior studies on English writing have predominantly focused on Western L1 learners, which consistently show that self-efficacy plays a primary and positive role in writing (see Klassen, 2002). However, some researchers concerned with cultural differences claim that a heightened sense of self-efficacy and optimism is not the only way to motivate learners for better achievements (Heine et al., 2001). Both East (e.g., China and Korea) and Southeast Asian cultures (e.g., Vietnam and Thailand) have been greatly influenced by Confucianism, which are referred to as Confucian heritage cultures (Tweed & Lehman, 2002). Under the influence of Confucian virtues such as diligence and hard work, Asian students are educated to be modest and make efforts regardless of their actual abilities and consequently are not prone to having/showing high confidence in competence (Li, 2006). Research suggests that students with an incremental view (i.e., growth mindset) of intelligence are more likely to persist and respond with flexible problem solving than those with a fixed view (Yeager & Dweck, 2012). A growth mindset may play a particular important role in Asian ESL/EFL learners' writing as they need to grapple with many difficulties and frustrations in the writing process. In addition, research shows that Western cultures stress the importance of learning interest and pleasurable learning experiences, but Asians give priority to utility over learning interest due to a pragmatic learning tradition (Tweed & Lehman, 2002). Although previous research has investigated the respective role of each of these motivational variables (i.e., self-efficacy, growth mindset, utility and interest) in English writing, research into how these motivational variables may collectively impact Asian ESL/EFL learners' writing is still scarce. Therefore, it is necessary to understand how different motivational beliefs work on Asian ESL/EFL learners' writing so as to improve their writing competence.

Furthermore, the study would examine how motivational beliefs influence Asian ESL/EFL writers' SRL strategy use. There is a wealth of studies covering the positive impacts of SRL writing strategy use in enhancing the quality of students' writing (Bai, 2015; Limpo & Alves, 2013). However, strategy use itself is often a result of students' being motivated to write. According to the sociocognitive perspective, motivational beliefs initiate, direct and sustain the learning behaviors (Wigfield et al., 2015; Zimmerman, 2000). Whereas many studies in language learning indicate that motivational beliefs are crucial for SRL strategy use and performance, there is still a general lack of studies examining how motivational beliefs influence SRL writing strategy use, not to mention such research in ESL/EFL and K-12 school contexts. The present study thus represents an important endeavor to contribute to the research field by examining the role of motivation in Asian ESL/EFL students' SRL strategy use and competence in writing.

2. Literature review

2.1. Motivation in language learning and writing research

Eccles and Wigfield (2002) stress the importance of understanding how multiple motivational variables (e.g., task values and self-efficacy) may influence achievement-related behaviors (e.g., self-regulated learning) collectively. The present study included self-efficacy, task values and growth mindset. Self-efficacy has been a major focus of research in the field of language learning and writing. Writing self-efficacy refers to self-perceptions of the capability to perform a writing task (Pajares, 2007). It has been well documented that self-efficacy significantly predicts writing competence (Troia, Harbaugh, Shankland, Wolbers, & Lawrence, 2013). For example, Bruning, Dempsey, Kauffman, McKim, and Zumbrunn (2013) found that writing self-efficacy was positively correlated with students' self-reported writing performance and statewide writing assessment scores for 11th and 12th writers in the USA.

Task value involves the personal significance or value attached to a task (Eccles & Wigfield, 2002). Individuals are more likely to engage in a task when they believe it is enjoyable, useful and/or important. Two primary task values, i.e., interest and utility, are associated with intrinsic and extrinsic motivation (Noels, Lascano, & Saumure, 2019). Utility is related to extrinsic motivation as students engage in writing for instrumental or other reasons, such as for job advancements, course credits, and integration into the target language culture. Interest or intrinsic value is related to the feelings of enjoyment and enhancement experienced during the process of writing. Interest and utility are found to be positively related to language learning performance and writing performance (Liem, Lau, & Nie, 2008). Troia et al. (2013) found that interest and utility directly contributed to the quality of students' writing. In comparison to average and poor writers, good writers reported greater interest in and valuation of writing tasks. Moreover, interest has been shown to improve acquisition and performance better than utility (Law, 2009). Focusing on 1395 secondary school students' English writing in Hong Kong, Lee et al. (2018) found

that high-proficiency students had higher writing efficacy and were more interested in English writing, but did not have higher utility.

It is only recently that the role of mindsets in the context of language learning has started to be explored (Mercer & Ryan, 2010). A growth mindset refers to the belief that intelligence is changeable through efforts and good use of SRL strategies. Students with a growth mindset are more persistent, exert more efforts, and have better educational outcomes than those who believe that intelligence is fixed (Yeager & Dweck, 2012). Although students with a growth or fixed mindset may not differ in their baseline abilities, those with a growth mindset tend to end with better academic achievements because of their positive responses and sustained efforts in the face of setbacks (see Burnette, O'Boyle, Vanepps, Pollack, & Finkel, 2013). Blackwell, Trzesniewski, and Dweck (2007) found that growth mindset predicted an upward trajectory of academic achievements across challenging school transitions. Lou and Noels (2016) found that regardless of competence levels, students' growth mindset positively predicted the learning goal of developing language competence, and this learning goal in turn predicted more mastery-oriented behaviors (e.g., seeking out challenges and making efforts) and more language learning persistence in failure situations, and less helpless behaviors (e.g., avoidance of challenge). Writing is an extremely challenging task given its multifaceted nature, and ESL/EFL writing for Asian students is generally more laborious and metacognitively demanding as their native languages (e.g., Chinese) are typologically different from English and they need to rely excessively on their L2 linguistic knowledge. Growth mindset may be particularly important for English writing because it determines persistence and resilience in the face of challenges. Despite its possible unique benefits in writing, research on mindset in ESL/EFL writing has been scant. Among the few studies, Bai and Guo's (2019) study with Hong Kong primary school students found that the high achieving writers reported a higher level of growth mindset than the average achievers, who in turn outperformed the low achievers. More empirical studies in different ESL/EFL and K-12 school contexts are needed to shed light on the role of growth mindset in English writing so as to inform teachers' practices (Bai & Guo, 2019; Bruning & Horn, 2000).

2.2. Self-regulated learning

Self-regulated learning (SRL) refers to a proactive process through which students set goals, select and deploy strategies, and monitor and regulate their cognition to achieve the goals (Zimmerman, 2008). Zimmerman (2008) depicts self-regulation as a self-oriented feedback loop that consists of three cyclical phases, i.e., forethought, performance, and self-reflection. In the forethought phase, a student begins the study through task analysis and setting a desired stage of learning. As the student studies, s/he makes efforts and deploys strategies, as well as monitors the progress and quality of cognitive activities during the performance phase. Self-reflection takes place upon completion of learning or problem solving, which involves self-judgements directed at either learning outcomes or the learning process, and self-reaction, such as allocation of additional learning time. The student will continue to study so as to minimize the discrepancy between the current state and desired state of learning.

Zimmerman's (2008) self-regulatory feedback loop coincides with the stage model of writing proposed by Flower and Hayes (1981) that consists of pre-writing (planning), while writing (translating), and after writing (reviewing/revising). Self-regulated writers use specific SRL strategies at different phases in order to produce their writing effectively (Bai & Guo, 2019; Limpo & Alves, 2013). Before writing, writers use self-initiating strategies to seek writing resources and learn from model compositions. They also set goals for the composition, and plan and organize writing ideas. While writing, writers convert ideas into text, and monitor the progress and quality of writing. After writing, revising strategies are employed to evaluate and edit what has been written. Numerous experimental and correlational studies show that SRL strategy use enhances the quality of students' writing (Bai, 2015; Limpo & Alves, 2013). Teng and Zhang's (2016) survey study of 790 Chinese undergraduate students found that idea planning, text processing, monitoring and evaluating, and feedback handling showed significant predictive effects on EFL writing proficiency. Bai (2018) employed think-aloud protocols to elicit Singapore primary school students' SRL strategy use in their actual process of writing. The results showed that the high achievers outperformed the low achievers in using both metacognitive strategies and cognitive strategies. Hu and Gao (2018) found differences in resource management for English writing between three high achievers and three low achievers of the 7th grade in Hong Kong. It is worth noting that within the limited research on SRL strategy use in ESL/EFL writing, most studies have targeted either young learners (Bai, 2018; Bai & Guo, 2019) or adult learners (Chien, 2012; Teng & Zhang, 2016), SRL strategy use and its impacts on writing competence among secondary students has not been adequately addressed. This study will focus on secondary students and shed light on whether and what SRL writing strategies enhance the writing quality of this neglected student population in ESL/EFL settings.

2.3. The role of motivation in SRL writing strategy use

Zimmerman (2000) claimed that, "Self-regulatory skills are of little value if a person cannot motivate themselves to use them" (p. 17). Students may learn SRL writing strategies, but do not want to write or use these strategies. Motivation initiates and sustains learning behaviors, and influences persistence and intensity of engagement (Wigfield et al., 2015). Many researchers posit that self-efficacy underlies the forethought processes of goal setting and strategic planning, and influences the attention, efforts, and time devoted to the different phases of writing (Bruning et al., 2013; Zimmerman & Risemberg, 1997). Research has consistently shown that self-efficacy beliefs play a primary role in energizing writing strategy use and predicting

writing performance (see Klassen, 2002 for a review). For example, Kim, Wang, Ahn, and Bong (2015) used latent profile analysis to examine different patterns of Korean university ESL learners' self-efficacy beliefs for learning English, including listening, speaking, reading and writing. They found that students with high and medium self-efficacy profiles significantly used more SRL strategies than those with a low self-efficacy profile. Guo and Bai's (2019) study with Hong Kong primary school students showed a reciprocal relationship between self-efficacy and SRL writing strategy use. Previous language learning research has also proved a positive link between task values and SRL. Interest and utility are found to positively predict efforts and persistence (Noels, 2003) and cognitive strategy use (Liem et al., 2008), and negatively predict task disengagement (Liem et al., 2008). Students who are interested in particular tasks make more efforts, persist for a longer time, and use more SRL strategies than those without such interest (Fryer & Ainley, 2017).

Although research directly investigating growth mindset in writing is lacking, studies in other areas provide evidence that growth mindset predicts SRL strategy use, which, in turn, predicts academic achievements (Burnette et al., 2013). Growth mindset is found to positively predict an array of SRL strategies, including planning and seeking help (Doron, Stephan, Boiché, & Scanff, 2009), awareness and use of cognitive strategies (Law, 2009), remedial actions if performance is unsatisfactory (Hong, Chiu, Dweck, Lin, & Wan, 1999), and positive responses when facing setbacks (e.g., seeking new strategies and devoting more efforts) (Yeager & Dweck, 2012). Burnette et al. (2013) conducted a meta-analysis of the associations between growth mindset and self-regulation, and found that growth mindset significantly predicted goal setting, goal operating, and monitoring. However, to our knowledge, a very small number of studies have addressed the role of growth mindset in writing. Within the limited research, Bai and Guo (2019) took self-efficacy, interest, and growth mindset into account simultaneously to investigate their relative contributions to SRL writing strategy use for Hong Kong primary school ESL/EFL learners. They found that compared with self-efficacy and interest, growth mindset had the strongest and most significant correlations with the students' use of SRL strategies. However, Bai and Guo (2019) did not include perceived utility, and only focused on three types of SRL writing strategies (i.e., planning, self-monitoring, and acting on feedback). There is a need to expand Bai and Guo's (2019) study by including perceived utility and other SRL writing strategies to have a more comprehensive understanding of the complex relations between motivational beliefs and SRL writing strategies in the whole writing process.

2.4. Influence of the sociocultural context

Motivation is influenced by cultural values, social norms, and educational systems (King & McInerney, 2016). Cross-cultural research indicates that students from different sociocultural contexts maintain different values and beliefs for learning, and the impacts of certain motivational beliefs may be different across cultural contexts (Li, 2006; Tweed & Lehman, 2002). For example, western researchers have given a central role to self-efficacy which denotes that believing in one's ability and optimistic thoughts about oneself would enhance achievements (Eccles & Wigfield, 2002; Pajares, 2007). Self-efficacy has consistently shown to be a robust predictor of strategy use and performance in writing across cultural contexts (Bai & Guo, 2019; Bruning et al., 2013; Eccles & Wigfield, 2002; Pajares, 2007). However, growth mindset may play a more significant role than self-efficacy in ESL/EFL writing in Asian countries and regions, e.g., China and Japan, due to the influence of Confucianism. Some researchers have claimed that a heighted sense of self-efficacy and optimism is not the only way to motivate oneself for better achievements (Heine et al., 2001). Hau and Ho (2010) claimed that the importance of self-efficacy among Chinese students may not be as prominent in shaping learning behaviors as in the West because the relationship between self-efficacy and effort expenditure is not emphasized. As a result, Chinese students are more likely to make efforts despite their current competence level. Whereas Western students tend to view ability as a relatively stable trait, students in East Asian Confucian heritage cultures generally view ability to be malleable and can be improved through hard work (Wigfield et al., 2015). Heine et al. (2001) found that Japanese people who failed were motivated to make efforts than those who succeeded. In contrast, North Americans who failed were less likely to persist than those who succeeded. In order to explain Japanese people's greater persistence in the face of failure, the follow-up study by Heine et al. (2001) shows that Japanese people believe that abilities are more incremental than European Americans, and that Japanese people are more likely to view achievements as a product of efforts. Therefore, for students influenced by Confucian heritage cultures, growth mindset may play a critical role in learning in general and writing in particular. The present study is one of the first empirical studies in which growth mindset and self-efficacy are considered together in the domain of ESL/EFL writing among Asian secondary school students.

Moreover, several studies indicate that the students in Asian Confucian heritage contexts are more likely to focus on utility of education than their Western counterparts (Hau & Ho, 2010). In contrast, Western cultures give a central role to learning interest and emphasize the idea of enjoyment in learning. Confucianism emphasizes a pragmatic acquisition of essential knowledge but de-emphasizes learning interest (Li, 2006; Tweed & Lehman, 2002). Research shows that Hong Kong students' English learning has been predominantly driven by utility such as for career opportunities or socioeconomic advancements (Lee et al., 2018; Lo & Hyland, 2007). Bai and Guo's (2019) study shows that Hong Kong ESL/EFL learners had a low level of interest in English writing, but utility was not examined in their study. Apart from the influence of culture, the emphasis on utility may intensify in an examination-oriented education context. Lee et al. (2018) found that Hong Kong secondary students generally reported low interest in writing but had a higher level of utility (e.g., "I consider learning writing important because I can get into a good school/university."). Lo and Hyland (2007) note that English teachers in Hong Kong adopt a utilitarian approach to teaching English, which involves many decontextualized grammar practices of students. English learning is crucial for further education, with success largely being assessed by examination scores. English Writing is one of

the most essential skills. However, there has been a lack of studies that address how writing utility may function in ESL/EFL learners' writing in comparison to interest in Asian Confucian heritage contexts, e.g., Hong Kong.

In sum, several research gaps have been identified. First, although research on motivation in language learning and writing has flourished, very few studies have investigated the role of motivational beliefs in ESL/EFL learners' writing. Second, the impacts of SRL strategy use on writing competence among secondary school students has not been adequately addressed. Third, due to influence of the sociocultural context, growth mindset and utility may play very important roles in writing for ESL/EFL learners in Asian Confucian heritage contexts while how these two motivational variables may function is still unclear. By focusing on Hong Kong secondary school students, this study will investigate the impacts of four motivational beliefs (i.e., growth mindset, self-efficacy, utility, and interest) in ESL/EFL learners' SRL strategy use and writing competence. As such, this study would provide a better understanding of how motivational beliefs work on secondary school ESL/EFL students' writing in an Asian context. There are two research questions:

1. What are the differences in motivation and SRL strategy use among high, average and low achievers?
2. What are the relative contributions of the four motivational beliefs (i.e., growth mindset, self-efficacy, utility, and interest) to Hong Kong secondary school students' SRL writing strategy use?

3. Method

3.1. Participants and context

Invitations were sent to 12 secondary schools in Hong Kong and nine agreed to participate upon receiving the students' guardian's consent. The participants were 540 8th graders (12−16 years old, *mean* = 13.29 *SD* = 0.70), including 27 12-year-olds, 367 13-year-olds, 102 14-year-olds, 31 15-year-olds, and six16-year-olds. Of the participants, 225 were boys (41.7%) and 314 were girls (58.1%) from 22 intact classes, with approximately 25 students per class. *T*-tests revealed non-significant difference in the motivational beliefs and SRL writing strategy use between the different age groups, and between boys and girls. Thus, age and gender were not used as covariates in the analyses.

Compared with the English language learners in English speaking countries (e.g., the UK and the USA), Hong Kong English learners have fewer opportunities to practice English in daily lives as Cantonese is the main medium of communication. Writing in English, especially, is not a regular daily activity for the majority of Hong Kong students (Evans, 2017). Hong Kong children begin to learn English writing systematically upon entering primary school. The English language curriculum guide has advocated process writing (Curriculum Development Council, 2017). In primary schools, students need to learn to draft, revise and edit short written texts with the teacher's support. Secondary school students learn more advanced cohesive devices and more sophisticated techniques. They need to plan and organize ideas, create written and multimodal texts, and revise and edit the writing independently.

3.2. Measures

3.2.1. Measures of motivational beliefs in English writing

The questionnaire included 16 items related to writing motivation with four items in each of the four subscales (i.e., self-efficacy, interest, perceived utility, and growth mindset). The self-efficacy in English writing subscale ($\alpha = 0.91$) was modified from Bruning et al. (2013) and Pajares (2003). The interest and perceived utility subscales were adapted from Pintrich and De Groot (1990). The interest subscale ($\alpha = 0.95$) measured the extent to which students get enjoyment in English writing. The utility subscale ($\alpha = 0.89$) measured the degree to which students realize the importance and utility of English writing. The growth mindset subscale ($\alpha = 0.84$) was adapted from Dweck (2006) and measured the extent to which students believe their English writing competence is improvable through efforts. The students were asked to rate their motivational beliefs on a 5-point Likert scale from 1 (*completely disagree*) to 5 (*completely agree*).

1. One example of writing interest: "I enjoy writing English compositions."
2. One example of writing utility: "I think English writing is a useful skill."
3. One example of self-efficacy: "I have confidence in my English writing ability."
4. One example of growth mindset: "My English writing competence gets better with practice."

3.2.2. Measures of SRL strategy use in English writing

To assess SRL writing strategy use, items were adapted from Bai, Hu and Gu's (2014) SRL writing strategy questionnaire. Six subscales that measured SRL writing strategies for the whole writing process were included, i.e., self-initiating (5 items, $\alpha = 0.82$), planning (4 items, $\alpha = 0.75$), text-generating (4 items, $\alpha = 0.78$), self-monitoring (8 items, $\alpha = 0.87$), revising (7 items, $\alpha = 0.92$), and acting on feedback (3 items, $\alpha = 0.71$). All the scales were measured on a 5-point Likert scale (1 = *Never, 2 = seldom, 3 = sometimes, 4 = often, 5 = Always*).

1. One example of self-initiating: "To write compositions well, I read a lot to improve my writing."
2. One example of planning: "Before I write an English composition, I write an outline first."
3. One example of text-generating: "I try to develop ideas for my own writing from the reading materials."
4. One example of self-monitoring: "I try to make my ideas flow well."
5. One example of revising: "After writing a composition, I change the sentence structure."
6. One example of acting on feedback: "After writing a composition, I incorporate my teacher's useful feedback."

3.2.3. Writing competence test

Three experienced English teachers designed a writing test and ensured its content validity. The students were asked to write a narrative story based on a given topic. They had 40 min to produce approximately 120 words. Their compositions were independently rated by another two experienced secondary school English teachers on four aspects, i.e., content, language, vocabulary, and organization. Each aspect was scored on a 12-point scale, resulting in a total score of 48. The participants' writing scores given by the two raters had a good inter-rater reliability, Spearman's rho = 0.96, $p < .001$. This study also adopted Ebel and Frisbie's (1986) classification levels of discrimination power (D value) of tests: > 0.39 (excellent), 0.30−0.39 (good), 0.20−0.29 (mediocre), and 0.00−0.20 (poor). The average D value was 0.43, suggesting that writing test had an excellent discrimination power. A *t*-test was conducted to compare the difference in the writing scores between the top 27% ($n = 153$, $M = 26.99$, $SD = 5.77$) and bottom 27% ($n = 159$, $M = 6.58$, $SD = 3.24$) of the participants (Ebel & Frisbie, 1986). The significant difference between the two groups, $t(310) = 38.32$, $p < .001$, indicate that the test can well differentiate students who had high or low writing abilities.

3.3. Procedures

All ethical clearances were obtained before administering the questionnaire and writing test to the students. The students were informed that their participation was voluntary, and that they could withdraw anytime. They finished the questionnaire in an English class within around 15−20 min with their English teachers' supervision. All questionnaire items were shown in traditional Chinese after proper translation and checking for accuracy. Within the same week, the participants completed the writing test in another English class within 40 min under their teachers' supervision.

3.4. Data analyses

First, we conducted confirmatory factor analysis (CFA) using Mplus 7 to examine the factor structure of the motivational beliefs and SRL writing strategies. Second, descriptive analyses and correlation analyses were conducted. Third, two multivariate analyses of variance (MANOVAs) were performed to examine whether the high, average, and low achieving writers differed in the level of motivational beliefs and SRL writing strategy use, respectively. Fourth, structural equation modeling (SEM) was conducted to examine the impacts of motivational beliefs on SRL writing strategy use.

4. Results

4.1. Confirmatory factor analysis (CFA)

For the motivational beliefs, a four-factor model was posited. The motivational beliefs CFA model was acceptable: $x^2 = 340.910$, $df = 95$, RMSEA = 0.069, 90% C.I. [0.062, 0.077], CFI = 0.965, TLI = 0.956, SRMR = 0.045. The six-factor model for SRL writing strategies was also acceptable: $x^2 = 1183.724$, $df = 418$, RMSEA = 0.058, 90% C.I. [0.054, 0.062], CFI = 0.917, TLI = 0.908, SRMR = 0.053. The CFA results showed that both the motivational beliefs and SRL writing strategies instruments had satisfactory construct validity.

4.2. Descriptive statistics and correlations of variables

Table 1 presents the means, standard deviations, and correlations for all variables. The rank order showed that planning ($M = 3.33$, $SD = 0.74$), self-monitoring ($M = 3.15$, $SD = 0.73$), and text-generating ($M = 3.09$, $SD = 0.81$) were the most frequently used types of SRL writing strategies. However, the students reported a relatively low level of self-initiating in English writing ($M = 2.58$, $SD = 0.87$). Twenty-two point five percent (22.5%) of the students reported using planning strategies often (4) or always (5), 17.0% acting on feedback, 16.5% revising, 15.6% text-generating, 13.7% monitoring, and 6.67% self-initiating, respectively. As for the motivational beliefs in writing, the students reported a low level of interest in writing ($M = 2.34$, $SD = 1.03$), but rated utility on a higher level ($M = 3.42$, $SD = 0.99$). They maintained a medium level of growth mindset ($M = 3.37$, $SD = 0.84$), but a much lower level of self-efficacy ($M = 2.57$, $SD = 0.98$). Thirty-five percent (35%) of the students reported that they (completely) agreed (4 = *agree* and 5 = *completely agree*) on the belief statements about utility, 31.9% growth mindset, 9.81% self-efficacy, and 8.70% interest, respectively.

Table 1
Descriptive statistics and bivariate correlations of variables.

	GM	SF	IN	UT	SI	PL	TG	MN	AF	RV	SC
GM	1										
SF	.624**	1									
IN	.477**	.675**	1								
UT	.589**	.424**	.499**	1							
SI	.557**	.598**	.578**	.419**	1						
PL	.531**	.440**	.315**	.411**	.473**	1					
TG	.466**	.372**	.359**	.449**	.560**	.540**	1				
MN	.585**	.556**	.455**	.472**	.617**	.679**	.624**	1			
AF	.482**	.313**	.336**	.412**	.488**	.458**	.455**	.552**	1		
RV	.489**	.419**	.380**	.413**	.608**	.482**	.507**	.584**	.519**	1	
SC	.274**	.270**	.266**	.206**	.218**	.258**	.215**	.330**	.103*	.192**	1
Mean	3.37	2.57	2.34	3.42	2.58	3.33	3.09	3.15	2.99	3.05	16.87
SD	0.84	0.98	1.03	0.99	0.87	0.74	0.81	0.73	0.85	0.82	8.71

Notes. GM = growth mindset; SF = self-efficacy; IN = interest; UT = utility; SI = self-initiating; PL = planning; TG = text-generating; MN = self-monitoring; AF = acting on feedback; RV = revising; SC = scores in English writing test. $^{**}p < .01$, $^{*}p < .05$.

The correlation analysis results showed that all motivational beliefs were positively associated with all types of SRL writing strategies ($0.32 \leq r \leq 0.59$, $p < .01$). The correlations between growth mindset and five types of SRL strategies were higher than those between self-efficacy and the SRL strategies, only with an exception for self-initiating. Both the motivational beliefs and SRL writing strategy use were positively related to the students' writing competence.

4.3. Differences in motivation and SRL strategy use among high, average and low achievers

According to their performance in the writing competence test, the top 27% and bottom 27% of the participants were categorized as high and low writing achievers, and the remaining students were categorized as average writing achievers. First, a MANOVA was performed to compare the mean values of motivational beliefs between the low, average, and high achievers. There was an overall effect of writing competence groups (Wilks's $\lambda = 0.901$, $F\,[8, 1068] = 7.153$, $p < .001$, partial $\eta^2 = 0.051$). Significant differences were found at the $p < .001$ level among the three groups of students for all the four subscales of writing motivation (see Fig. 1). According to Cohen's (1988) criteria, partial η^2 in the range of 0.01–0.06 is considered to be a small effect, 0.06 to 0.14 moderate effect, and more than 0.14 large effect. Moderate associations were found between growth mindset and the English writing competence test score ($F = 18.719$, partial $\eta^2 = 0.065$), and small associations were found for self-efficacy ($F = 13.768$, partial $\eta^2 = 0.049$), utility ($F = 12.102$, partial $\eta^2 = 0.043$), and interest ($F = 11.393$, partial $\eta^2 = 0.041$). Post hoc comparisons using the Scheffé test revealed that the high achievers generally reported higher motivation than the average achievers, who in turn outperformed the low achievers. The high achievers reported significantly higher mean scores on all four types of motivational beliefs than the low achievers (see Table 2). However, the high and average achievers were not significantly different in utility and growth mindset. The average and low achievers were not significantly different in interest. There was a tendency of a strict linear development only for self-efficacy.

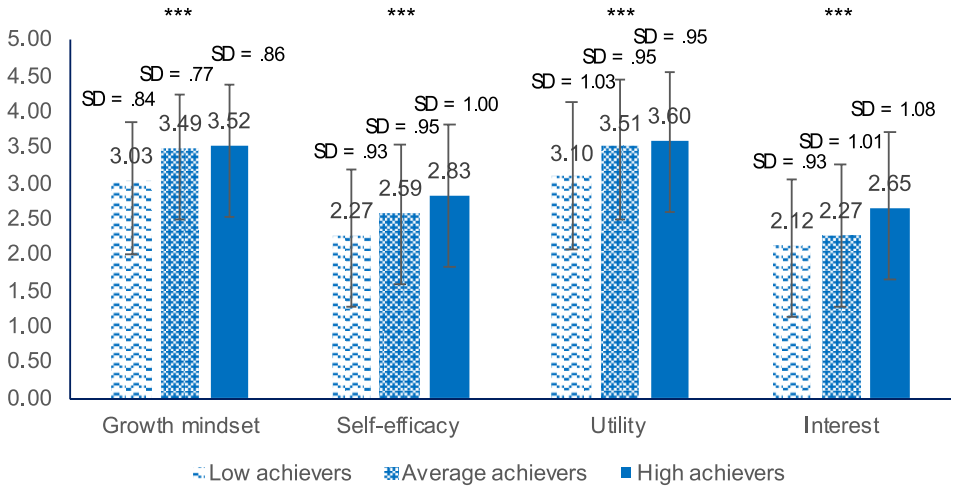

Fig. 1. Mean differences of motivational beliefs among high, average and low achievers in English writing. $^{***}p < .001$.

Table 2
Pairwise comparisons for high, average, and low writing achievers.

	Performance levels (I)	Performance levels (J)	Mean differences (I-J)	*p*
Growth mindset	High	Low	.50	.000
	High	Average	.04	.911
	Average	Low	.46	.000
Self-efficacy	High	Low	.57	.000
	High	Average	.24	.048
	Average	Low	.32	.006
Utility	High	Low	.50	.000
	High	Average	.08	.701
	Average	Low	.42	.000
Interest	High	Low	.52	.000
	High	Average	.38	.002
	Average	Low	.15	.386
Self-initiating	High	Low	.38	.000
	High	Average	.26	.015
	Average	Low	.12	.387
Planning	High	Low	.52	.000
	High	Average	.09	.505
	Average	Low	.43	.000
Text-generating	High	Low	.48	.000
	High	Average	.14	.220
	Average	Low	.34	.000
Self-monitoring	High	Low	.60	.000
	High	Average	.25	.003
	Average	Low	.36	.000
Revising	High	Low	.40	.000
	High	Average	.17	.114
	Average	Low	.23	.024
Acting on feedback	High	Low	.25	.032
	High	Average	-.02	.969
	Average	Low	.27	.009

Another MANOVA was conducted to compare SRL writing strategy use between the high, average and low achievers. There was an overall effect of writing competence groups (Wilks's $\lambda = 0.856$, F [12, 1064] = 7.16, $p < .001$, partial $\eta^2 = 0.075$). Fig. 2 presents the mean differences in SRL writing strategy use among the high, average, and low achievers. There were significant differences at the $p < .001$ level among the three writing competence groups for five subscales of SRL writing strategies except for acting on feedback ($p = .005$). Moderate associations were found between English writing competence and planning ($F = 24.397$, partial $\eta^2 = 0.083$) and self-monitoring ($F = 29.936$, partial $\eta^2 = 0.100$), and small associations were found for self-initiating ($F = 8.198$, partial $\eta^2 = 0.030$), text-generating ($F = 15.340$, partial $\eta^2 = 0.054$), revising (F = 9.895, partial $\eta^2 = 0.036$), and acting on feedback ($F = 5.414$, partial $\eta^2 = 0.020$). Post hoc comparisons using the Scheffé test revealed that the high achievers reported significantly higher means for use of all six types of SRL writing strategies than the low achievers.

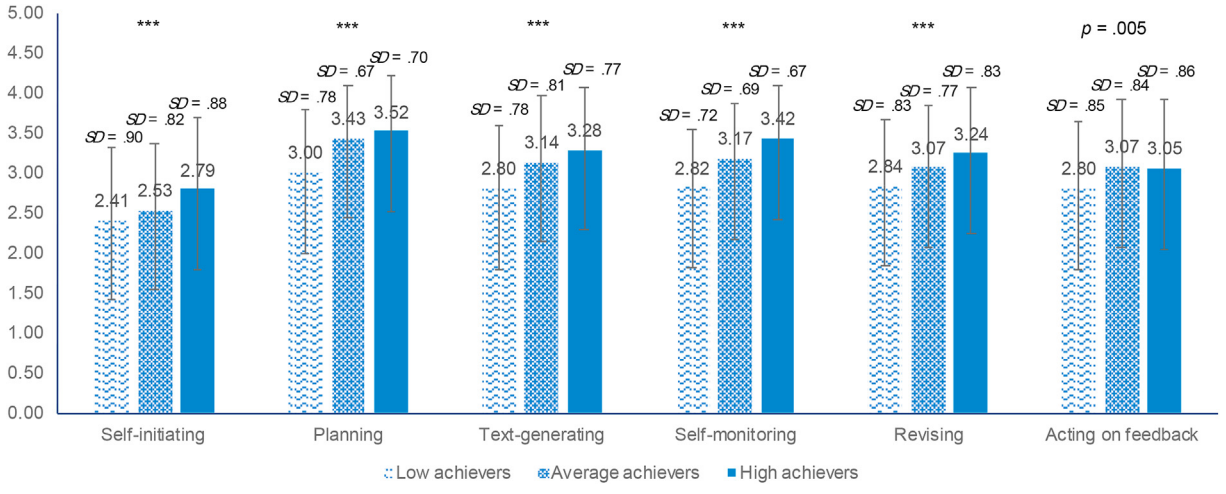

Fig. 2. Mean differences of SRL writing strategy use among high, average and low achievers in English writing. ***$p < .001$.

However, the average and high achievers were only significantly different in their use of self-monitoring and self-initiating strategies. Only for self-monitoring, there was a tendency of a strict linear development.

4.4. Contributions of the four motivational beliefs (i.e., growth mindset, self-efficacy, utility, and interest) to Hong Kong secondary school students' SRL writing strategy use

SEM was conducted to investigate the role of motivational beliefs in SRL writing strategy use. Paths were drawn from the four motivational beliefs to the six types of SRL writing strategies. The model fit the data well: $x^2 = 2275.511$, $df = 986$, RMSEA = 0.049, 90% C.I. [0.047, 0.052], CFI = 0.924, TLI = 0.917, SRMR = 0.050. As shown in Fig. 3, growth mindset in English writing positively and strongly predicted acting on feedback ($\gamma = 0.74$, $p < .001$), positively and moderately predicted planning ($\gamma = 0.63$, $p < .001$), self-monitoring ($\gamma = 0.42$, $p < .001$), revising ($\gamma = 0.41$, $p < .001$), text-generating ($\gamma = 0.40$, $p < .001$), and self-initiating ($\gamma = 0.38$, $p < .001$). Interest in writing significantly and positively predicted three types of SRL writing strategies, including self-initiating ($\gamma = 0.36$, $p < .001$), acting on feedback ($\gamma = 0.14$, $p < .001$), and revising ($\gamma = 0.12$, $p < .001$). In contrast, perceived utility in writing only weakly predicted text-generating ($\gamma = 0.20$, $p < .001$). Self-efficacy was a positive predictor of self-monitoring ($\gamma = 0.20$, $p < .001$). Whereas self-efficacy was positively related to acting on feedback in the correlation analyses, it showed a negative influence on acting on feedback ($\gamma = .-32$, $p < .001$) while controlling for the other motivational beliefs in the model.

We checked the path coefficients of the other motivational beliefs on acting on feedback and found that the coefficient between growth mindset and acting on feedback ($\gamma = 0.74$) was inflated beyond their zero-order correlation ($r = 0.48$). Such an attenuated coefficient may indicate a suppression situation due to the relations between growth mindset and self-efficacy. Therefore, a series of analyses were conducted to identify the motivational beliefs that created the suppression. First, we tested a model to examine the impact of only one motivational variable at one time. Then, we added an additional variable and tested the model to examine the impact of two motivational variables at one time. It was found that when only self-efficacy was included, it had a positive impact on acting on feedback. The effect of growth mindset on acting feedback increased when self-efficacy was added, whereas the effect of self-efficacy was suppressed to a negative value. On the whole, 54.5% of the variance in self-initiating, 50.3% of variance in self-monitoring, 46.5% of the variance in planning, 43.6% of

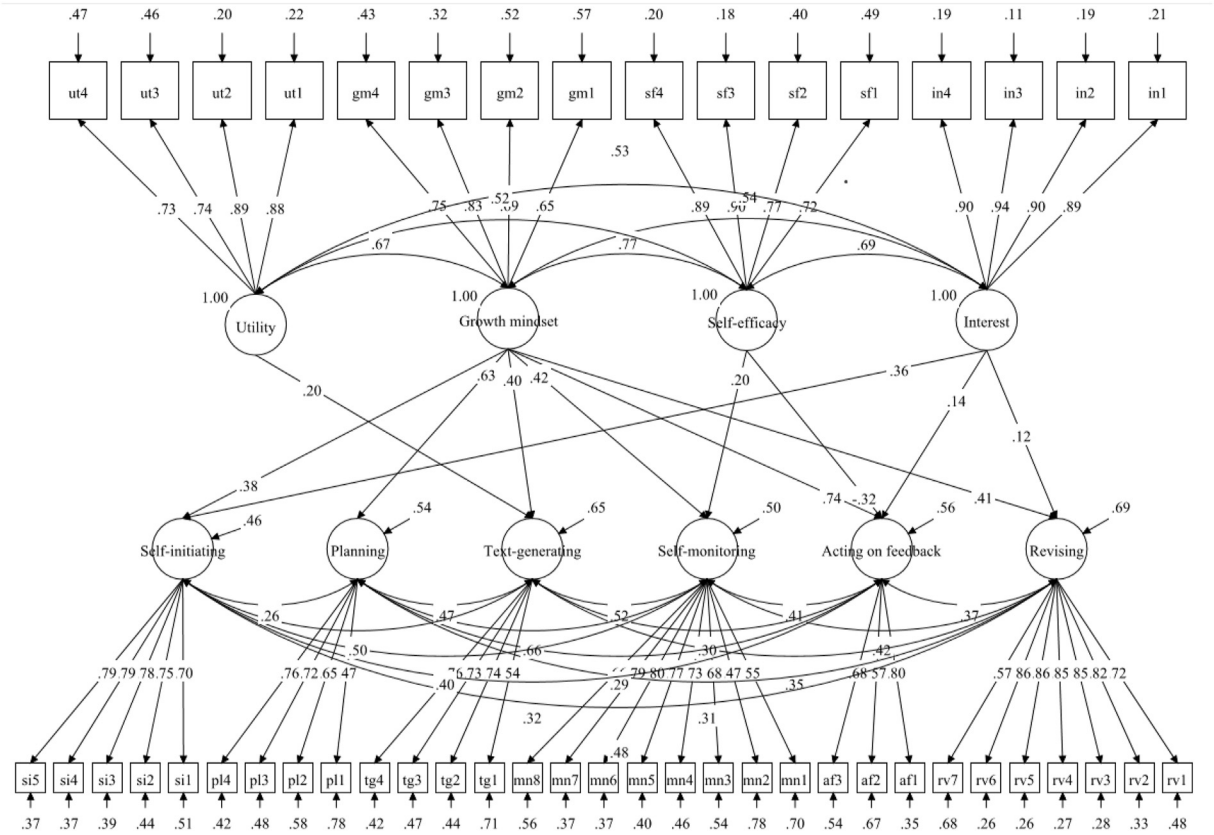

Fig. 3. An SEM model depicting the impacts of motivational beliefs on self-regulated writing strategy. All path coefficients are significant and standardized.

variance in acting on feedback, 34.6% of variance in text-generating, and 30.6% of variance in revising were explained by the motivational variables.

5. Discussion

The main purpose of this study was to examine the role of motivational beliefs in SRL writing strategy use and writing competence for Hong Kong secondary school ESL/EFL learners. The positive impacts of motivational beliefs on SRL strategy use and writing competence provide empirical evidence for policy makers and teachers to better shape the teaching of ESL/EFL writing in Hong Kong and other Asian Confucian heritage cultures.

5.1. Levels of motivational beliefs and SRL strategy use in English writing

The secondary school students reported a low level of interest ($M = 2.34$) and a higher level of utility ($M = 3.42$) in English writing. Such findings echo Lee et al.'s (2018) investigation of Hong Kong secondary students' and Bai and Guo's (2019) report on Hong Kong primary students' English writing. Hong Kong students realize the utility value of English writing in primary school and a high level of utility remains until secondary school. However, the consistent finding of low writing interest should be an alarm to Hong Kong English teachers. Students' motivation in writing is influenced by the specific cultural and educational context. A possible reason is that Hong Kong English teachers highlight the importance of writing in academic achievements and career goals but neglect the development of students' interest in writing. English writing in Hong Kong has been found to be product-oriented, and writing tasks are remote from students' own interest, knowledge and life experiences (Lee et al., 2018; Lo & Hyland, 2007). Previous studies have also found that Asian Confucian heritage cultures give a central role to the extrinsic value of education but de-emphasize the intrinsic value (Hau & Ho, 2010).

The students in the present study generally had a low level of self-efficacy belief in English writing. It is noteworthy that the high achievers ($M = 2.83$) reported a relatively low level of self-efficacy despite their actual achievements (i.e., writing test scores). Cross-cultural research suggests that Asian American and Asian students are often modest in the competence beliefs than their Western counterparts despite their generally high achievements (Leung, 2002; Wigfield et al., 2015). Moreover, the self-efficacy level of the secondary school students in our study ($M = 2.57$) is lower than the self-efficacy level ($M = 3.43$) reported by Hong Kong primary school students in prior studies (e.g., Bai & Guo, 2019). It is very possible that students' writing self-efficacy experiences a general decline as they enter secondary school. Students in Hong Kong engage in more social comparisons with their peers due to the highly competitive examination system after entering secondary school, which produces failure experiences and unsatisfactory writing performance. In contrast, the Hong Kong secondary school students in our study generally believed that their English writing competence was malleable through efforts (i.e., growth mindset, $M = 3.37$), which could be due to the influence of the Confucian culture that gives a central role to learning virtues and efforts (Li, 2006; Tweed & Lehman, 2002). Wang and Rao's (2019) investigation into Chinese middle school teachers have provided direct and explicit evidence that teachers in China transmit traditional Confucian learning virtues to students, such as diligence, persistence, and enduring hardship, aligning with the emphasis on improvement and efforts.

The students in our study reported a general medium level of SRL writing strategy use, except for a relatively low level of self-initiating in English writing ($M = 2.58$). Prior studies have also reported students' lack of using self-initiating strategies (Bai, Shen & Mei, 2020). This could probably be due to the fact that ELF/ESL learners in Hong Kong have few opportunities for English writing in their daily lives, and that most of their English writing practices are out of their English teachers' requirement for completing writing assignments (Lo & Hyland, 2007). Possibly, students have little voluntary preparation and practice that takes place outside the classroom because Hong Kong ESL/EFL learners have a low level of interest in English writing (Lee et al., 2018; Lo & Hyland, 2007) and interest is considered a positive predictor of students' self-initiating.

5.2. Role of motivation and SRL strategy use in writing competence

A key contribution of the study is the identification of a positive link between the four subscales of motivational beliefs, the six subscales of SRL strategies, and writing competence. It was found that the high achievers reported higher levels of motivation than the average achievers, who outperformed the low achievers. The high achievers also reported a higher level of SRL writing strategy use than the low achievers. The findings are in line with previous studies that indicate a positive role of self-efficacy (Kim et al., 2015; Troia et al., 2013), interest (Law, 2009; Lee et al., 2018; Troia et al., 2013), perceived utility (Troia et al., 2013), and SRL writing strategy use (Chien, 2012; Teng & Zhang, 2016) in English writing. Notably, this study is one of the first empirical investigations into the role of growth mindset in EFL/ESL writing. Our study confirms that growth mindset, which has been largely neglected in EFL/ESL contexts, is also positively related to writing competence. The present study provides empirical evidence for both motivation and writing strategy use as two key ingredients of students' development as writers.

However, for some variables (i.e., utility, growth mindset, planning, text-generating, revising, and acting on feedback), there were significant differences between the low achievers and their average and high achieving counterparts, but not between the high and average achievers. In contrast, for some other constructs (i.e., interest and self-initiating), significant differences existed between the high achievers and their average and low achieving counterparts, but not between the average and low achievers. Such findings may indicate a complex development trajectory of motivation and SRL in students of

different competence levels. Our participants, secondary students, have been exposed to the motivational variables and also used many SRL strategies in primary school and the 7th grade, especially those directly related to the writing process, e.g., planning, text-generating, revising, and acting on feedback. Although all students live and study in the same context, i.e., Asian Confucian heritage cultures that emphasize learning virtues and efforts and extrinsic values (Hau & Ho, 2010; Li, 2006; Tweed & Lehman, 2002), not all students may identify themselves with the motivational variables in the same way. Those who are more influenced by perceived utility value and growth mindset tend to employ more SRL writing strategies, which enables them to become high and average achievers, whereas some students become low achievers because of their lower levels of utility value and growth mindset attached to English writing. On the other hand, a significant difference in self-efficacy and self-monitoring existed between the three writing competence groups probably because self-efficacy and self-monitoring have more sustaining effects on English writing. These findings also echo some researchers' view of a curvilinear relationship between motivation, strategy use and competence levels (Bai et al., 2020; Kim et al., 2015). The general but imperfect positive relationship in our study indicates that the tendency of students' motivation and strategy use development is not strictly linear as they become more competent.

Although some researchers (e.g., Griffiths, 2003) claimed that only group differences at the two extremes should be reported, the differences between students of different competence groups can provide important implications on how to implement differentiated instructions. The significant differences between low achievers and other students, but not between high and average students indicate that promoting strategy use such as planning, text-generating, revising, and acting on feedback should be particularly beneficial for low achievers, but may not be equally effective for average and high achievers. Other researchers have also noted that SRL writing strategies are particularly effective for struggling writers (Graham et al., 2005; Graham, Harris, Kiuhara, & Fishman, 2017). Moreover, given the significant difference in growth mindset and perceived utility of writing between the low achievers and other students in our study, it is essential to help struggling writers develop a belief in malleability of their writing competence and realize the utility value of English writing, so that they can still make efforts despite their low competence. This is in line with prior studies that have found growth mindset to predict positive responses and persistence when students experience educational disadvantages, and to be effective in promoting low achievers' competence (Yeager & Dweck, 2012). A second approach to enhancing low achievers' writing motivation is to promote their perceived utility. Research shows that students' interest in a given activity is not apparent until they have acquired some minimal level of competence (Lepper & Henderlong, 2000). When students' interest level is very low, their perceived utility can keep them staying engaged in writing and may help them improve their performance.

As for average achievers, what makes a difference between them and high achievers are interest and self-initiating behaviors. To become high achievers, only completing teacher assigned writing tasks is far from enough, the average achievers need to write and read extensively outside the classroom in their free time (Bonney, Cortina, Smith-Darden, & Fiori, 2008). These self-initiating behaviors are usually trigged by interest.

5.3. Role of motivation in SRL strategy use

The present study identified important differences between the students of writing competence groups in their motivational levels and SRL writing strategies for the whole writing process. These findings suggest that promoting motivation in writing can contribute to SRL writing strategy use regardless of their original motivational level. Such findings are consistent with the existing studies that have found self-efficacy (Bai & Guo, 2019; Klassen, 2002; Zimmerman & Risemberg, 1997), and interest and utility (Liem et al., 2008; Noels, 2003) positively predicted SRL strategy use.

Furthermore, whereas the four motivational beliefs (i.e., growth mindset, self-efficacy, interest, and utility) have rarely been considered together, this study investigated how they worked together to predict SRL strategy use in ESL/EFL learners' writing. The results provide insights into the specific effects and comparative merits of these motivational beliefs. Growth mindset was found to be the strongest predictor of all six types of SRL writing strategies for Hong Kong secondary school students. In contrast, self-efficacy only had a moderately positive impact on the students' self-monitoring after controlling for the impacts of the other motivational beliefs. The more essential role of growth mindset over self-efficacy among Hong Kong students may be pertinently shaped by Confucian thoughts that emphasize a malleable view of ability through efforts (Hau & Ho, 2010; Wang & Rao, 2019). Importantly, the impacts of growth mindset and self-efficacy on acting on feedback indicated a suppression effect. Self-efficacy had a negative impact on acting on feedback after controlling for growth mindset. It is possible that secondary students in Hong Kong are discouraged by their English teachers' writing feedback that is dominated by a focus on error corrections and writing scores (Lee, 2014; Lee et al., 2018). Students with high self-efficacy but without a high level of a growth mindset may interpret demotivational feedback as a sign of a lack of ability and are less motivated to persist on the failed tasks. In contrast, students who believe writing ability is changeable through efforts may be especially motivated to cope with teachers' (demotivating) feedback to make improvements because they believe mistakes are part of the learning process and interpret teachers' feedback as useful information for future development (Burnette et al., 2013). Compared with students with a fixed mindset, students with a growth mindset are more likely to persist when receiving feedback that signals negativity because the "failures" make improvable aspects of learning more salient (Heine et al., 2001).

As for the task values, writing interest was a stronger predictor of SRL strategy use than perceived utility of writing. Writing interest significantly and positively predicted three types of SRL writing strategies, including self-initiating, revising, and acting on feedback. That is, the students who are interested in writing are more likely to write extensively outside the classroom in their free time, and check and edit compositions based on self-evaluation and others' feedback. The findings are

in line with earlier studies that reported a positive link between interest and SRL strategy use (Bonney et al., 2008; Liem et al., 2008). For example, Bonney et al. (2008) found that students who had interest were more likely to involve themselves in extracurricular learning activities. In contrast, perceived utility only contributed to text-generating. Although the Confucian cultural tradition and competitive educational context give priority to the pragmatic value of learning over interest, our present study shows that interest is also very important for students' SRL writing strategy use in Asian contexts, thus signifying the need to promote Asian ESL/EFL learners' interest in writing.

5.4. Limitations and future directions

Our study focused on Hong Kong ESL/EFL learners' motivational beliefs in writing. The students were recruited from nine participating schools, which may be under-representative of all secondary school students in Hong Kong, so the generalizability of the study is restricted. Future research should include a larger sample of ESL/EFL learners from more schools in Hong Kong and in other Asian/Confucian heritage societies to ascertain the generalizability. In addition, cross-cultural studies suggest the level and role of growth mindset and self-efficacy, as well as interest and utility may vary across cultures (King & McInerney, 2016). Future cross-cultural studies are needed to compare the impacts of these motivational beliefs in strategy use and writing performance between Western and Asian students. Third, the cross-sectional design of the study cannot ensure power of causality between students' motivational beliefs, strategy use, and writing competence. Future researchers interested in establishing the causal relationships are advised to adopt a longitudinal design. Fourth, there were small correlations between the writing test scores, motivational variables and SRL writing strategies, due to which the results of the present study should be interpreted with some caution.

5.5. Conclusion and implications

Despite these limitations, the present research contributes to a better understanding of the impacts of motivational beliefs on Hong Kong secondary school ESL/EFL learners' SRL writing strategy use and writing competence. It was found that the students had a high level of perceived utility, but a lower level of interest in writing. They had a high level of growth mindset in writing but a lower level of self-efficacy. Important differences between the high, average and low writing achievers in motivation and SRL strategy use were identified, indicating that both motivational beliefs and SRL writing strategy use are essential for writing competence. The study also found that the motivational beliefs were significant predictors of SRL strategy use. The results highlight the unignorable role of growth mindset and confirm the positive impacts of interest on Hong Kong secondary school ESL/EFL learners' writing. Especially, our findings on self-efficacy challenge the typical view of self-efficacy having an omnipotent impact on writing in previous research (Bruning et al., 2013; Pajares, 2007).

These findings have very important pedagogical implications for the teaching of English writing in Hong Kong and other similar Asian contexts. First, growth mindset significantly promotes strategy use and writing competence, which suggests that growth mindset as an ingredient of intervention to enhance writing competence should be especially effective for struggling writers. As such, English teachers can help struggling writers understand that their efforts and failures should be seen as part of a normal process of improving their writing. English teachers should recognize their students' efforts paid to their learning and offer praises as a result. Once struggling writers have made some progress, teachers can help students anlalyze how their efforts have led to improvement. Teachers can also share relevant reading materials about how the brain/intelligence can be improved through hard work according to empirical research (e.g., Blackwell et al., 2007). Quick tips and strategies will help students develop their growth mindset. Moreover, students' willingness to expend efforts can be fostered when they have more feasible plans and formative assessment (Wang & Rao, 2019). English teachers can design personalized tasks that offer an appropriate level of challenges for struggling writers and help them set specific and short-term goals. Teachers should provide personal writing feedback that involves specific and explicit ways to improve each student's writing. Demotivational feedback focusing on errors and grades should be avoided. It is necessary to help students, especially low achievers, realize the positive role of "mistakes" in improvements. Overall, students' writing should be evaluated based on improvements rather than outcomes, and improvements should be attributed to efforts.

Second, it is essential to promote students' interest and perceived utility in English writing, which are particularly beneficial for average and low achievers. Lo and Hyland's (2007) study has indicated that interest and perceived utility could be promoted by placing writing in meaningful, purposeful and exciting contexts and allowing students to express their own voices. Authentic and interesting tasks that give students genuine reasons for writing should be provided. Additionally, teachers can explain the important role of English writing in students' overall academic achievements and future careers because English has increasingly become an important lingua franca.

As students' frequency of using different types of SRL writing strategies varies, English teachers should offer comprehensive strategy-based instructions to promote students' use of strategies targeting the whole writing process to achieve sustaining effects on students' English writing (Bai, 2018). Teachers need to encourage students to use strategies such as self-initiating ($M = 2.58$), acting on feedback ($M = 2.99$), and revising ($M = 3.15$). The significant differences between low achievers and average achievers in use of many SRL writing strategies highlight that these strategies should be especially essential to low achievers' writing, so it is necessary to provide more strategy-based instructions to them.

Author contributions

Category 1.
Conception and design of study: Barry Bai, Jing Wang
Acquisition of data: Barry Bai, Jing Wang
Analysis and/or interpretation of data: Jing Wang, Barry Bai.
Category 2.
Drafting the manuscript: Jing Wang, Barry Bai
Revising the manuscript critically for important intellectual content: Barry Bai, Jing Wang.
Category 3 Approval of the version of the manuscript to be published (the names of all authors must be listed): Barry Bai, Jing Wang.

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