

Chapter 5

Strategy Use and Performance in EFL Writing of Taiwanese Learners



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Abstract The competence to write in English has become an essential ability especially as English has gained the status of a lingua franca. However, many EFL learners in Taiwan struggle to write a “well-organized and generally coherent essay that demonstrates sufficient control of vocabulary and sentence structures” as described in the GEPT High-Intermediate Writing Test Rating Scale. Drawing on a pool of 470 EFL learners who took the GEPT High-Intermediate Writing Test (roughly equivalent to the CEFR B2 level), this study seeks to examine learning strategies employed by Taiwanese EFL learners, their overall writing performance, and specific areas of difficulty they face. Their learning strategies were investigated by use of a writing strategy questionnaire based on Oxford’s (Language learning strategies: what every teacher should know. Heinle & Heinle, Boston, 1990) taxonomy of learning strategies. Statistical analyses were employed to explore the relationships between strategy use and writing performance, and a comparison was made between the successful and the unsuccessful candidates of the writing test. Furthermore, we characterized Taiwanese EFL learners’ writing difficulties, as reflected by their writing errors, by analyzing a sample of writing scripts randomly selected from both the successful candidate and unsuccessful candidate groups. The writing difficulties were linked to the learning strategies on which EFL writing instruction should focus. Findings of this study are of pedagogical significance to writing instructors.

Keywords EFL writing · GEPT · Learning strategy use · Error analysis

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5.1 Introduction

The ability to communicate, either orally or in writing, through English is highly prized in this globalized world. However, EFL learners in Taiwan have been struggling specifically with writing in English. The annual score data summaries of the General English Proficiency Test (GEPT), a level-based criterion-referenced English testing system tailored to Taiwanese EFL learners, have revealed that Taiwanese EFL learners consistently score higher in the speaking component than in the writing component (The Language Training & Testing Center [LTTTC], *n.d.*). Statistics from the Advanced Subjects Test (AST), one of the college entrance examinations administered by the College Entrance Examination Center in Taiwan, show that in the past 10 years, median scores for English composition lie between 6 and 8, out of a total score of 20. Data from 2018 to 2019 further revealed that around 10% of all test-takers received a score of 0 (College Entrance Examination Center [CEEC], *n.d.*). To help EFL learners in Taiwan improve their ability to write in English and overcome their writing difficulties, efforts should be taken to understand learners' learning processes and their effects on writing performance.

Language learning processes can be understood partly through an investigation into the learning strategies language learners employ to acquire particular language skills. Learning strategies, as defined in Oxford (1990), are “specifications taken by the learners to make learning easier, faster, more enjoyable, more self-directed, more effective, and more transferable to new situations” (p. 8). Moreover, learning strategy use is closely associated with performance in second language learning as the use of strategies has been recognized as one important source of individual variation in language learning outcome. In particular, it is believed that competent learners are effective because of special learner techniques or strategies (Bai et al., 2014; Naiman et al., 1978; O'Malley & Chamot, 1990; Rubin, 1981; Wong & Nunan, 2011; Wu, 2008).

The association between the use of learning strategies and performance in EFL writing has been explored in a number of studies (De Silva, 2015; Huang & Chen, 2006; Lei, 2016; Victori, 1999; Yang, 2013). The investigation into learning strategy use benefits from adopting a taxonomic analysis of learning strategies, which can reflect the underlying cognitive processes that are involved in a learning task. While a number of taxonomic systems have been proposed in the literature (e.g., O'Malley & Chamot, 1990; Oxford, 1990), their focus on the general processes of foreign language learning may not adequately account for the real processes involved in a specific language skill or task (Hsiao & Oxford, 2002). This emphasizes the need for a skill-based investigation of learning strategies, which can more readily contribute to our understanding of the relevant learning processes.

Kao and Reynolds (2017) may have been the first to investigate the taxonomy of learning strategies involved in EFL writing as a prerequisite to establishing the link between strategy use and writing performance. Their study identified four types of strategy use: cognitive/preparation, compensation/supporting, affective, and social/textual interaction. It further showed that cognitive/preparation strategy use was

positively correlated with writing ability and negatively correlated with writing difficulty. However, some questions arise from their research methods and findings. First of all, the absence of metacognitive strategy use is worthy of note because previous studies have shown that metacognitive strategy use is an important facilitator of learning performance (Anderson, 2005; O'Malley & Chamot, 1990; Victori, 1999). Secondly, the authors suggested that the results might be biased partly by the homogeneity of the subject pool. Furthermore, it should be noted that the participants' writing ability and writing difficulties were self-rated; therefore, the measures were likely to be the reflection of students' self-confidence, rather than their real performance.

This study aims to examine Taiwanese EFL learner's use of learning strategies for EFL writing and its link with their EFL writing performance in a high-stakes writing test (i.e., the GEPT High-Intermediate Writing Test) using a larger subject pool and by taking both quantitative and qualitative approaches. The EFL learners' writing performance is assessed on a more objective measure of writing ability—the score they received in the writing test. In addition to using the quantitative measure as an indicator of writing performance, this study also examines Taiwanese EFL learners' writing difficulties by conducting error analyses on a sample of writing scripts. Comparisons have been made between more proficient writers (i.e., successful candidates of the writing test) and less proficient writers (i.e., unsuccessful candidates of the test) in terms of learning strategy use and writing difficulties. It is expected that a synthesis of the findings will have implications for writing instruction.

The following research questions were addressed in this study:

1. What are the learning strategies used by EFL learners in Taiwan to learn to write in English? Are there any differences between the more proficient and the less proficient EFL writers?
2. What are the relationships between learners' learning strategy use and writing performance? Are there any differences between the more proficient and the less proficient EFL writers?
3. What are the writing difficulties of the less proficient EFL writers in comparison with the more proficient ones?

5.2 Literature Review

5.2.1 *Taxonomic Systems of Learning Strategies*

Learning strategies can be classified into several broad categories, and different taxonomies have been proposed in the literature. For example, O'Malley and Chamot (1990) differentiate three types of learning strategies in their model: metacognitive, cognitive, and socio-affective strategy uses. Cognitive strategies involve practicing the language to be learned, while metacognitive strategies are higher-order executive skills that help learners regulate their learning processes by

planning, monitoring and evaluating their learning. The socio-affective strategies concern the interaction with others or the skills necessary to regulate personal emotions, such as anxiety or self-confidence. Another widely-cited model is that proposed by Oxford (1990), in which there are six strategy groups. In addition to the core strategy types proposed in O'Malley and Chamot (1990), Oxford distinguishes two additional strategy types from cognitive strategies: memory and compensatory strategy use. Memory strategy use involves remembering and retrieving new information, while compensatory strategy use involves using the language despite knowledge gaps. Furthermore, she also recognizes the individual impacts of social factors and affective factors on language learning and regards them as independent primary strategy groups. The validity of these different taxonomic systems has been evaluated in Hsiao and Oxford (2002); nevertheless, the results suggest that a skill-based investigation of learning strategy use can better reflect the underlying learning processes. While Kao and Reynolds (2017) may have been the first to investigate the classification of learning strategy use in relation to EFL writing, the lack of metacognitive strategy in their findings warrants further exploration into this issue.

5.2.2 Strategy Use and Writing Performance

The link between strategy use and performance in EFL writing has been established in several studies, which compare strategy use between EFL writers with different levels of writing skills. For example, by using think-aloud and interview data, Yang (2002) and Victori (1999) found considerable differences between skilled writers and less skilled writers in their application of text planning, monitoring and evaluation strategies. Skilled writers were found to spend more time planning their writing and tended to revise and enhance their writing at the global level, targeting such aspects as the coherence and unity of their texts. In addition to differences in the writing processes, the two groups showed attitudinal differences toward the writing activity (Lei, 2016; Victori, 1999; Wong & Nunan, 2011). Specifically, skilled writers tended to be more committed to the task and displayed a greater degree of autonomy. For example, Lei (2016) found that less skilled writers often regarded themselves as task-doers and the writing task as a task to be fulfilled, while skilled writers viewed writing as a way of communication and themselves as both a language learner and an author. The two groups also differed remarkably in the aspects of noticing language use, imitating good writers (e.g., teachers or skilled peers) in their strategy use, maximizing their chances of practicing English writing, and setting goals related to developing writing ability.

Other studies explore the issue by means of quantitative approaches, and the discussion of strategy use is grounded in a taxonomic system of learning strategies, which provides additional insights into the interrelationships of different strategy types. For example, Yang (2013) and Huang and Chen (2006) both employed O'Malley and Chamot's model to examine the use of learning strategies among Chinese-speaking EFL students. Yang (2013) found that EFL novice writers at the

secondary level of education most often applied affective strategies and memorization, but least often applied strategies such as revision, social interaction and planning. Examining a different cohort, Huang and Chen (2006) demonstrated that Chinese college students most often applied cognitive strategies, such as use of synonyms and checking errors, but least often applied socio-affective strategies, such as asking for the teacher's help or asking for comments from their peers. A path analysis further showed that while all three strategy types (i.e., metacognitive, cognitive and socio-affective strategy uses) had a direct impact on writing, writing performance was particularly related to cognitive and metacognitive strategy use. Similar findings were observed in Kao and Reynolds (2017), which demonstrated a significant link between cognitive strategy use and self-rated measures of writing performance.

As many studies have already explored writing performance in terms of test scores or self-reporting, this study aims to add granularity by further characterizing EFL learners' writing difficulties through examination of EFL errors, which potentially reflect their knowledge of the language system and their difficulties with using the language. Tseng (2016) conducted a similar study examining the writing errors of Taiwanese EFL learners who took the GEPT Intermediate Writing Test (roughly equivalent to CEFR B1 level). Writing errors were examined and coded at different linguistic and textual levels, including word choice, within-sentence grammaticality, text coherence and unity, and rhetorical structure. Her study has shown that less proficient writers demonstrate specific error patterns that are less observed among the more proficient writers. Such findings may instruct writing instructors as to which aspects of writing to focus on when they are helping less proficient writers improve their writing skills. Adapting Tseng's (2016) error coding framework, this study similarly examines the writing difficulties of our target population.

5.2.3 *The GEPT Writing Test*

The General English Proficiency Test (GEPT), developed and administered by the Language Training and Testing Center (LTTC) in Taiwan, is a criterion-referenced EFL testing system targeting English learners in Taiwan from junior high school upwards. The test is offered at five levels: Elementary, Intermediate, High-Intermediate, Advanced and Superior, which are roughly equivalent to CEFR A2, B1, B2, C1 and C2, respectively. Test-takers can register for any level that fits their needs. GEPT scores are used for a variety of purposes including job applications, university admission, placement and graduation (Kunnan & Wu, 2009), and it also has considerable impacts on English language teaching and testing in Taiwan (Wu, 2012).

Writing is one component included in all levels of the GEPT, though the test is in different formats depending on the writing ability targeted at each specific level. For example, the writing tasks at the Intermediate and High-Intermediate levels contain Chinese-English translation and guided writing, but those at the higher proficiency

levels involve integrated writing. The alignments between the different levels of the GEPT writing test and the CEFR have been validated in Knoch and Frost (2016). In addition, the validity of the GEPT writing tests has been examined and established in a number of studies (Chan et al., 2014; Kunnan & Carr, 2015; LTTC, 2003; Qian, 2014; Weir et al., 2013; Yu & Lin, 2014) and they have been used extensively to collect and explore Taiwanese EFL learners' writing processes (Lin, 2019), use of English language (Cheung et al., 2010) or their writing difficulties (Kuo, 2005; Sun, 2018; Tseng, 2016; Wu, 2016).

This study aims to examine which types of strategies are employed by Taiwanese EFL learners to learn to write in English and how their use of learning strategies is related to their EFL writing performance, as reflected by the writing test scores and writing errors. A synthesis of the findings will have implications for the learning strategies on which EFL writing instruction should focus.

5.3 Method

5.3.1 Participants

Participants were 479 test-takers of the GEPT High-Intermediate Writing Test sampled from four test sites in different regions of Taiwan. The participants were asked to fill out a learning strategy questionnaire immediately after the writing test. They were informed that the purpose of the questionnaire was to understand their use of strategies to learn to write in English and that it was only for research purposes. They were also guaranteed that their willingness to respond to the questionnaire would not affect their test score.

Among the respondents, 2 did not make any responses and 7 did not complete substantial portions of the questionnaire, and thus they were excluded from the subject pool. In all, questionnaires from 470 respondents were considered in the subsequent analyses. The sample demonstrated a representative sample of the population who took part in this specific GEPT test in terms of sex and status. Around 60% ($n = 280$) of respondents were female. A great majority of the respondents were high school students ($n = 290$, 61.70%), 24.04% ($n = 113$) were college and graduate students, while the remaining 14.26% ($n = 67$) were non-students.

5.3.2 Instruments

5.3.2.1 The GEPT High-Intermediate Writing Test-Guided Writing

The GEPT High-Intermediate Writing Test is composed of two subtests: Chinese-English translation and Guided Writing. Due to our interest in essay writing

performance, this study looked only at the Guided Writing subtest. EFL learners at this level are characterized as being able to write about topics related to daily life and express their personal viewpoints on current events. Therefore, in this subtest, the test-takers are required to write a 150 to 180-word essay to express opinions about a specific issue and support their ideas with examples.

In terms of rating, each writing script was double rated holistically based on a 6-point rating scale, ranging from 0 to 5. In cases where a discrepancy between the two marks was greater than 2 band scores, a third rater determined the final score. A well-organized piece of writing which adequately addressed the topic and task and demonstrated sufficient control of vocabulary and sentence structure received a score of 4 or above and reached the passing standard of this subtest. However, pieces which displayed less satisfactory coherence and more limited and incorrect use of vocabulary and structures received a score of 3 or below. A sample test and sample essays for different band scores can be found at <https://www.ltc.ntu.edu.tw/geptscoresremark/hicomposition.pdf>. It should be noted that the writing score the test-takers finally received was a composite of the scores from the Chinese-English translation part (40%) and the Guided Writing part (60%). However, due to our focus on Taiwanese English learners' ability to compose an essay, this study only considered the scores the respondents received in the Guided Writing part.

The average writing subtest score of the 470 respondents was 3.35 ($SD = 0.51$), with most of the scores ($n = 453$) falling within the range between 3 and 4. The writing score distribution of our sample was similar to that of the overall population who took this test. Among our sample, 107 test-takers (22.77%) received a score at or above 4, and thus passed the Guided Writing subtest, while the remaining 363 test-takers (77.23%) obtained a score below 4 and were considered unsuccessful on this subtest.

5.3.2.2 The Learning Strategies for EFL Writing (LS-Writing) Questionnaire

The LS-Writing Questionnaire was devised to investigate the strategies EFL learners in Taiwan usually apply to develop their ability to write in English (see [Appendix I](#)). The questionnaire was constructed with reference to the suggested learning skills relevant to writing provided in Oxford (1990). The questionnaire consists of 40 items, with responses to be made on a 5-point Likert scale (1 = never or almost never true of me; 5 = always or almost always true of me). To ensure the respondents' understanding of the questions, the questionnaire was translated into Chinese. The Chinese version was piloted on a group of college students to collect suggestions regarding the clarity of question items and revisions were made accordingly. Further revisions were also made based on comments from two language experts.

After collecting the data of the respondents, the underlying constructs of the LS-Writing questionnaire were investigated by using exploratory factor analysis

(EFA). The data yielded a Kaiser-Meyer-Olkin (KMO) value of .912 and a Bartlett's statistical significance with a probability below .001, suggesting that it was suitable for factor analysis. Then, we used the factor extraction method with the principal axis factor and the promax rotation and removed items which did not meet qualifications (a factor loading lower than .4 or items with cross-loading) and finally derived 5 factors and 24 items. The five factors were termed *cognitive strategy use*, *affective strategy use*, *seeking practice opportunities*, *planning and evaluation*, and *self-regulation*, respectively. For more details about these constructs, please refer to [Appendix II](#).

5.3.3 Data Analysis

5.3.3.1 Quantitative Analyses

In addition to applying basic statistical analyses to gain a general overview of strategy use, we also adopted the structural equation modeling (SEM) approach to explore the interrelationships of different learning strategy types and their links to writing performance.

5.3.3.2 Error Analysis

To characterize EFL learners' writing difficulties, a sample of 30 scripts were randomly selected from the successful candidate group and 30 from the unsuccessful candidate group. As the comparison between the scripts receiving a score of 3 and those receiving a score of 4 is of particular interest to us since most of the test-takers' writing score fell within the range of 3–4, we selected only scripts with either of these two grades.

Our error coding framework was adapted from the frameworks in James (1998) and Tseng (2016). It covers 4 broad categories: mechanic errors, lexical use errors, grammatical errors, and textual level errors. In each category, there are specific error types, making a total of 34 error types (see [Appendix III](#)). To evaluate the reliability of the coding, 10% of the sampled scripts (6 from the successful candidate group and 6 from the unsuccessful candidate group) were re-coded by a second coder who had expertise in Applied Linguistics and experience teaching EFL writing. The inter-coder reliability reached 90.70% of agreement (Range = 82.5–100%). In the following analysis, the successful candidate group was compared with the unsuccessful candidate group in terms of the error types and error frequencies in order to ascertain which aspects could be targeted to improve overall writing effectiveness.

5.4 Results

5.4.1 The Use of Learning Strategies for EFL Writing

5.4.1.1 Relationships Among the Strategy Types

We examined the interrelationships between the five strategy types emerging from the EFA and their taxonomic structure by using the SEM approach. The maximum likelihood estimation (MLE) was applied to calibrate the parameters, and the hypothesized models were tested by using a series of chi-square difference tests. The resulting model is displayed in Fig. 5.1. This model revealed a significant chi-square value [$\chi^2(222) = 557.49, p < .001$], which could be due to the large sample size. Despite this, the model demonstrated a satisfying goodness-of-fit: $\chi^2/DF = 2.51, GFI = .91, CFI = .91, RMSEA = .057, SRMR = .057$, indicating that it provided an acceptable representation of the sample data.

In this model, there was a higher-order factor of metacognitive strategy use governing the constructs of seeking practice opportunities, self-regulation and planning and evaluating, with factor loadings ranging between .62 and .86 ($ps < .05$). On the other hand, the metacognitive strategy use held an executive control over the use of cognitive strategies and affective strategies, with factor loadings of .62 and .64 ($ps < .05$), respectively. Cognitive strategy use and affective strategy use were found to be significantly correlated at a factor loading of $-.25$, suggesting a negative relationship between the use of these two strategy types.

5.4.1.2 EFL Learners' Strategy Use

Based on the taxonomy of learning strategies presented in the analyses above, we examined the EFL learners' strategy use. It was found that EFL learners frequently

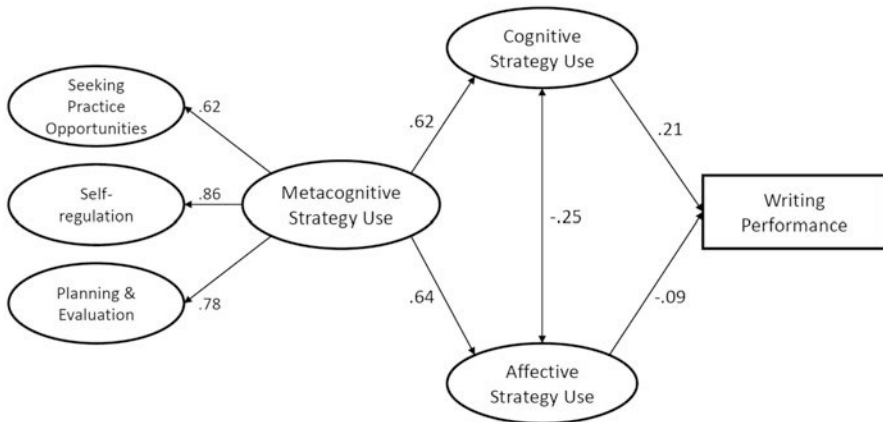


Fig. 5.1 Relationships between strategy use and writing performance

employed cognitive strategies [$M = 3.81$, $SD = .68$, $t(469) = 25.63$, $p < .001$], but significantly less frequently applied metacognitive strategies [$M = 2.84$, $SD = 0.69$, $t(469) = -5.13$, $p < .001$] and affective strategies [$M = 2.65$, $SD = .89$, $t(469) = -8.89$, $p < .001$]. Despite the finding on metacognitive strategy use, an examination of its three sub-factors revealed that EFL learners often applied self-regulation strategies [$M = 3.10$, $SD = .84$, $t(469) = 2.47$, $p = .014$], though they less often employed strategy types relating to seeking practice opportunities [$M = 2.50$, $SD = .93$, $t(469) = -11.70$, $p < .001$] and planning and evaluation [$M = 2.92$, $SD = .83$, $t(469) = -2.19$, $p = .029$].

5.4.2 Relationships Between Strategy Use and EFL Writing Performance

Correlation analyses demonstrated that EFL writing performance, as represented by the GEPT writing scores, demonstrated significant positive correlation with cognitive strategy use ($r = .14$, $p < .01$) and the construct of self-regulation of the metacognitive strategy use ($r = .11$, $p < .05$). Though the effect size was small, which could be due to the small range of writing score variation, it revealed the tendency that writing performance correlates with use of self-regulation behaviors and efforts devoted to writing practice.

The SEM approach was further applied to explore the interrelationships between strategy use and writing performance. The results showed that cognitive strategy use had a significantly positive and direct effect on writing performance, with a factor loading of .21. Though metacognitive strategy use showed no direct effect on writing performance, it did exert an indirect effect through cognitive strategy use. On the other hand, affective strategy use was found to be negatively associated with writing performance, yet the link did not reach significance. The full latent variable model is presented in Fig. 5.1.

5.4.3 Comparisons Between the Successful Candidate Group and the Unsuccessful Candidate Group

5.4.3.1 Patterns of Strategy Use

The successful candidate group and the unsuccessful candidate group were compared in terms of the frequency the candidates applied individual strategies. It was found that the unsuccessful candidates more often applied the affective strategy of regulating their feelings of tension during writing (LS16: $Z = -2.80$, $p < .01$), but significantly less often applied the metacognitive strategy of self-evaluation (LS37: $Z = 2.14$, $p < .05$) and the cognitive strategies of practicing using phrase patterns (LS18: $Z = 2.33$, $p < .05$) and recombining sentences (LS19: $Z = 2.18$, $p < .05$).

Table 5.1 The path coefficients in the successful candidate group model and the unsuccessful candidate group model

	Successful Candidates		Unsuccessful Candidates		z-score
	Estimate	β	Estimate	β	
Metacognitive Strategy Use → Cognitive Strategy Use	1.60	.78**	0.92	.58***	-1.23
Metacognitive Strategy Use → Affective Strategy Use	1.17	.59*	0.94	.66***	-0.45
Cognitive Strategy Use → Writing performance	-0.02	-.09	0.10	.19**	3.05**
Affective Strategy Use → Writing performance	0.02	.12	0.004	.01	-0.45

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

A multi-group SEM was further conducted to examine and compare the models of strategy use and writing performance of the successful candidate group and that of the unsuccessful candidate group. The results showed that taxonomic structure of strategy use applied to both the successful candidate group and the unsuccessful candidate group; however, the two groups differed in the path coefficients between cognitive strategy use and writing performance ($Z = 3.05$, $p < .01$) (see Table 5.1). Specifically, the unsuccessful candidates demonstrated a stronger positive link between cognitive strategy and writing performance ($\beta = .19$, $p < .005$), but the link failed to reach significance in the successful candidate group ($\beta = -.09$, $p > .05$). Moreover, it was observed that metacognitive strategy use showed a stronger link with cognitive strategy use in the successful candidate group ($\beta_{\text{Meta_Cog}} = .78$, $p < .005$), but a stronger link with affective strategy use in the unsuccessful candidate group ($\beta_{\text{Meta_Aff}} = .66$, $p < .001$), suggesting different patterns of learning strategy use among the two groups.

5.4.3.2 Distinctive Error Patterns of the Unsuccessful Candidate Group

Following the findings that the two groups differed significantly in their learning strategy use, we further investigated Taiwanese EFL learners' writing difficulties in order to link to the learning strategies on which EFL writing instruction should focus. A sample of writing scripts was examined in terms of the writing errors, and comparisons were made between the successful candidate group and the unsuccessful candidate group in terms of error types and frequencies (see Table 5.2). Overall, the unsuccessful candidates committed significantly more types of errors and made significantly more errors. In terms of the group difference within each category, the unsuccessful candidate group made significantly more errors at all levels except for the use of mechanics; however, the greatest group difference was observed at the grammatical level, which might be linked to their less frequent practice using language at the phrasal or sentential level.

Table 5.2 Error patterns of the successful candidates and the unsuccessful candidates

	Successful candidates	Unsuccessful candidates	t-test result
No. of scripts	30	30	
Overall performance			
Error type	13.30 (3.91)	16.97 (3.43)	$t(58) = 3.86^{***}$
Error frequency	24.50 (10.68)	35.10 (10.97)	$t(58) = 3.79^{***}$
Error categories			
<i>Mechanics</i>	3.33 (2.22)	3.57 (2.36)	$t(58) = 0.40$
Typ ^a	2.10 (1.54)	2.37 (1.52)	$t(58) = 0.68$
Fmt	1.03 (1.16)	0.93 (1.02)	$t(58) = -0.36$
Redn	0.20 (0.41)	0.27 (0.58)	$t(58) = 0.51$
<i>Lexical use</i>	6.03 (3.50)	8.37 (3.52)	$t(58) = 2.58^*$
LexForm	0.73 (1.02)	1.40 (1.35)	$t(58) = 2.16^*$
WW	1.60 (1.63)	1.37 (1.27)	$t(58) = -0.62$
WP	0.57 (0.73)	0.50 (0.63)	$t(58) = -0.38$
Ambg	0.97 (1.40)	1.87 (1.53)	$t(58) = 2.38^*$
GenW	0.27 (0.58)	0.43 (0.68)	$t(58) = 1.02$
Col	1.53 (1.28)	1.90 (1.73)	$t(58) = 0.93$
SmAn	0.37 (0.72)	0.90 (1.21)	$t(58) = 2.07^*$
<i>Grammar</i>	12.37 (5.89)	18.47 (7.00)	$t(58) = 3.65^{***}$
Det	2.57 (1.91)	3.37 (2.16)	$t(58) = 1.52$
Num	2.00 (1.88)	2.90 (2.16)	$t(58) = 1.73$
S-V Agm	0.53 (0.78)	1.13 (1.36)	$t(58) = 2.10^*$
VbFm	2.33 (2.32)	3.33 (2.09)	$t(58) = 1.75$
Comp	0.13 (0.35)	0.33 (0.61)	$t(58) = 1.57$
S-V Mis	0.10 (0.31)	0.33 (0.71)	$t(58) = 1.65$
Arg Mis	0.40 (0.62)	0.33 (0.61)	$t(58) = -0.42$
MulV	0.10 (0.31)	0.57 (0.73)	$t(58) = 3.24^{**}$
RProE	0.17 (0.46)	0.17 (0.38)	$t(58) = 0.00$
PE	1.50 (1.55)	1.67 (1.30)	$t(58) = 0.45$
Frag	0.30 (0.65)	1.10 (1.27)	$t(58) = 3.07^{**}$
Clau	0 (0)	0.07 (0.25)	$t(58) = 1.44$
Run-on	0.53 (1.17)	1.63 (2.21)	$t(58) = 2.42^*$
ModE	0.40 (0.86)	0.33 (0.55)	$t(58) = -0.36$
WConj	0.80 (0.85)	0.80 (1.03)	$t(58) = 0.00$
WOE	0.50 (0.68)	0.40 (0.62)	$t(58) = -0.59$
<i>Textual level</i>	2.77 (2.18)	4.70 (3.23)	$t(58) = 2.72^{**}$
ProE	0.80 (0.96)	1.53 (1.59)	$t(58) = 2.16^*$
OGL	0.03 (0.18)	0.03 (0.18)	$t(58) = 0.00$
IRL	0.20 (0.41)	0.60 (0.72)	$t(58) = 2.64^*$
NoUnity	0.20 (0.48)	0.43 (0.57)	$t(58) = 1.71$
NoCohen	0.47 (0.68)	0.77 (0.86)	$t(58) = 1.50$
NoConet	0.60 (0.86)	0.63 (0.77)	$t(58) = 0.16$
WConet	0.43 (0.86)	0.37 (0.72)	$t(58) = -0.33$
LogFal	0.03 (0.18)	0.33 (0.61)	$t(58) = 2.59^*$

* $p < .05$; ** $p < .01$; *** $p < .001$ ^aFor the details of the error categories, please refer to [Appendix III](#)

In terms of grammatical errors, the unsuccessful candidate group showed a greater proportion of errors not only with the morpho-syntactic marking of subject-verb agreement but also with syntactic structures such as multiple verb clauses, sentence fragments, and run-on sentences. The group difference was qualitative, as well as quantitative. For example, a closer inspection of the subject-verb agreement errors revealed that the successful candidate group committed this type of error mostly in complex syntactic structures like extended nominal groups (e.g., “This kind of employees are more productive . . .”) or relative clauses (e.g., “‘Learning by doing’ is what a man who want to be successful should believe in”), while the unsuccessful candidate group showed this type of error even in basic sentences (e.g., “My father have a wierd sick in his childhood”). Syntactic level errors revealed the unsuccessful candidates’ lesser mastery of basic syntactic rules of English, such as an independent clause requiring a subject and a verb, as well as insufficient knowledge of the syntactic behavior of some lexical units, such as subordinators and coordinators. This led them to produce multiple verb clauses such as “So the higher education guarantees greater success in life is not totally true” or sentence fragments such as “If you want to pursue further study in order to achieve their career and personal goals.” Run-on sentences involving comma splices or fused sentences, were also commonly observed among the unsuccessful candidates.

In addition to difficulties with grammar, the unsuccessful candidates’ error patterns at other levels provide further insight into their writing difficulties. For example, the unsuccessful candidates made significantly more lexical form errors and incomprehensible strings of words, which either generated ambiguous meanings or were otherwise difficult to interpret. These misuses suggest that the learners might lack vocabulary or adequate understanding of the words in terms of their senses. The unsuccessful candidates also revealed more prominent difficulties at the textual level. In particular, they tended to use pronouns inconsistently, include irrelevant sentences, and commit logical fallacies.

To summarize, the findings showed significant group differences at all linguistic and textual levels, yet with the greatest group difference manifesting itself in grammatical performance. Moreover, the errors of the unsuccessful candidate group were qualitatively different from the successful candidate group, demonstrating their poorer mastery of basic syntactic rules. These findings will be discussed in conjunction with findings on the unsuccessful candidates’ learning strategy use in the Discussion session.

5.5 Discussion

In this study, we first explored the taxonomy of learning strategies in relation to EFL writing and further examined the link between strategy use and writing performance, as based on the scores EFL learners received in a standardized writing test. Furthermore, we compared the successful and unsuccessful candidates of the writing test in terms of their learning strategy use and their writing errors in order to discover which

learning strategies writing instruction should focus on to help learners reach the required level of writing ability.

The investigation on the taxonomy of and the interrelationship between the learning strategies was conducted with the aim of understanding the learning processes EFL learners were involved in. The results revealed that EFL learners employed metacognitive strategy use, cognitive strategy use, and affective strategy use. The cognitive strategy use was related to practicing the use of the English language and was the most often applied strategy among the EFL learners. On the other hand, affective strategy use, which involved the regulation of emotion, was found to be less often applied. Furthermore, we found a role for metacognitive strategy use, which was missing in the model proposed by Kao and Reynolds (2017). Interestingly, metacognitive strategy use appeared to be a multifaceted construct, which included not only a focus on learners' planning and evaluating their own writing, but also the acts of regulating their own learning processes with the goal of improving their writing and practicing writing in authentic contexts outside of the classroom. The metacognitive strategy use played an executive role, which determined cognitive strategy use and affective strategy use.

The findings further demonstrated that the coordination of strategy use affects EFL learners' performance in writing. While the study found that cognitive strategy use, i.e., actively using English, had a direct and positive effect on EFL writing, metacognitive strategy use actually exerted an indirect effect on writing performance via cognitive strategy use. The findings suggest that practicing using English will lead to improvement in EFL writing. However, consistent with the proposal of Brown and Palincsar (1982), it was found that learning can be more effective if the EFL learners can maximize their use of metacognitive strategies, such as seeking opportunities to write in English in real situations (e.g., chatting with friends on social media), strengthening their focus on the planning and evaluation of the text, and purposefully striving towards the goal of improving writing by consulting with more proficient writers or monitoring their own progress. Use of these strategies creates opportunities for language use and may enhance the quality of writing products.

The relationship between strategy use and EFL writing performance was further verified in the comparison of strategy use patterns between the successful candidates and the unsuccessful candidates in the writing test. The multi-group SEM results revealed that the unsuccessful candidate group showed positive association between cognitive strategy use and writing performance, though the successful candidate group did not. This suggests that even among the unsuccessful candidates, those who often applied cognitive strategies tended to have better writing performance. Although the association was not observed in the successful candidate group, this might result from the smaller group size and a narrower score variation in this group.

In addition, the two groups demonstrated different patterns of coordination among the strategy types. Specifically, the successful candidate group demonstrated a stronger link between metacognitive strategy use and cognitive strategy use, while the unsuccessful candidate group showed a stronger link between metacognitive strategy use and affective strategy use. This finding provides insight into the role of

metacognitive strategy use, which may be guided by the EFL learners' knowledge about writing and about how they can improve their writing (Victori, 1999). Our findings that the unsuccessful candidates less often applied metacognitive strategies could be attributed to their insufficient knowledge of the writing task, inclusive of text structure and processes required. This undermines their ability to regulate themselves and to plan and evaluate their progress. This may explain why they more often concentrate on regulating their anxiety toward the task.

When the unsuccessful candidates were compared with the successful counterparts in terms of their application of individual strategies, it was found that the unsuccessful candidates less often practiced using phrase patterns or stringing together known expressions into longer sentences in writing. Their lack of practice using English at phrasal and sentential levels is consistent with the findings of the error analysis, which demonstrated candidates' difficulties at the grammatical level, particularly their less than satisfactory mastery of basic syntactic rules or the syntactic behavior of some lexical items. In addition to that, they also showed significantly more errors at lexical and textual levels.

A synthesis of the findings has implications for writing instruction. Though developing the ability to write in English has been included in Taiwan's education curriculum, there is considerable variation regarding how writing instruction has been incorporated and implemented in the classroom. However, the development of writing ability requires specific guidance and practices. Therefore, it is necessary for teachers to develop a writing curriculum which incorporates instruction not only on basic mechanics and writing conventions, but also of how a text should be structured. In addition, discussion on elements of good writing should be included, thereby providing learners with the ability to perform self-evaluation. In addition to this kind of textual instruction, the curriculum should also present the writing process to EFL learners, including—but not limited to—brainstorming, planning, organizing, evaluating, and resourcing. When guided through these processes, they should be able to approach the writing task more effectively.

It is also suggested that writing should be constructed as a communicative activity, not only in the process of writing, but also in the process of learning to write. Writing activities in a language classroom are often constructed in the form of one-way communication. That is, EFL learners are assigned a topic to write about, and the teacher is often the only audience. There is little substantial dialogue between the writer and the reader, and the writing activity is just another assignment to be dealt with. However, writing may be greatly improved if it is conducted for communicative purposes, such as persuading or sharing an idea with others. When EFL learners learn that what they write and how they write matters to the kind of message they are to deliver, they pay closer attention to their writing products. To make writing a communicative activity, the teachers need to create situations in which students write for a purpose. In addition, the teachers can also involve peers as one of the audiences, allowing students to provide each other with feedback. These arrangements can help EFL learners view themselves not only as language learners but also as authors and to develop a sense of ownership of their writing, which further increases their motivation to improve (Lei, 2016).

The findings of the error analysis also suggest the need to incorporate grammar instruction in EFL writing courses. However, there is no need to cover all writing errors in class, but rather to focus on those aspects which distinguish the more proficient from the less proficient writers (see also Tseng, 2016). In the case of this study, priority attention should be given to the use of subject-verb agreement and mastery of basic syntactic rules. We also suggest a functional-oriented approach of grammar instruction, so that EFL learners can learn grammar and usage in a meaningful context.

Last but not least, we would argue that strategy instruction should also be included in the writing curriculum. In addition to cognitive strategy use, which has been found to have direct effect on EFL writing performance (Huang & Chen, 2006; Kao & Reynolds, 2017), efforts need to be taken to increase EFL learners' metacognitive strategy use, focusing on self-evaluation, goal setting, and seeking practice opportunities, all of which can maximize practice opportunities and enhance motivation for learning, and thus lead to greater chances of improvement.

5.6 Conclusion and Implication

The findings of this study have both theoretical and pedagogical implications. On the theoretical side, our study presents a taxonomy of learning strategies in relation to EFL writing and further establishes the link between learning strategy use and writing performance, which can contribute to EFL writing pedagogies. In addition, the findings that the unsuccessful candidates in the writing test showed distinctive error patterns and greater writing difficulties compared with the successful candidates provides evidence for the scoring validity of the GEPT Writing Test at the High-Intermediate level. Despite its contributions, this study still has limitations. For example, our subject pool demonstrated only a small range of score variation, thus making statistical significance difficult to detect for some phenomena. Moreover, this study examined EFL learners who took an English writing test at a single proficiency level (i.e., the GEPT High-Intermediate Level); caution should be employed if the findings are extended to other populations, specifically those at a lower proficiency level. In addition, GEPT test-takers can register for any level that fits their needs; therefore, we cannot know the exact proficiency level of all of the test-takers. Finally, the link between learning strategy use and writing performance can be best verified empirically; therefore, further empirical studies on the link between strategy use and writing performance should be encouraged.

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Appendices

Appendix I

The Learning Strategies for EFL Writing (LS-Writing) Questionnaire

Below are statements about learning to write in English. Please read each statement and mark the response that tells how true the statement is in terms of what you actually do when you learn or practice to write in English.

- 1 = never or almost never true of me
- 2 = usually not true of me
- 3 = sometimes true of me
- 4 = usually true of me
- 5 = always or almost always true of me

Question Items

1. I imitate native speakers' writing (e.g., use of sentence patterns) to learn English writing.
2. In class, I use note-taking technique to practice writing.
3. In class, I highlight different types of information relevant to English writing (e.g., vocabulary, grammar points, cultural concepts, etc.) in the textbook or handouts.
4. I write a summary for a longer passage to practice writing.
5. While learning writing, I analyze elements in an article (e.g., indicating topic sentence).
6. I practice writing by writing in a real situation (e.g., writing a letter in English to friends).
7. I organize my learning by practicing writing on a regular basis, or keeping a language learning notebook to write down new target language expressions or structures.
8. I seek opportunities to practice writing (e.g., chatting with friends on LINE or other social media by typing English).
9. I write language learning diaries to understand and to keep track of my thoughts, attitudes, and language learning strategies.
10. I discuss my feelings and needs about writing with someone else.
11. I share my writing with my classmates and ask for feedback and comments.
12. To improve my writing, I ask my teacher to mark my writing errors and I correct them on my own.
13. Before writing, I examine the requirements of the task and my language ability to determine the need for further aids (e.g., seeking the teachers' help with or checking the grammar book about the use of conditional clauses when this unfamiliar sentence pattern is required in the writing task).
14. Before writing, I search for some information to gain the background knowledge or cultural background relevant to the writing topic in advance.
15. I pay attention to my feelings (e.g., tension) before writing.

16. When I feel nervous before or during writing, I try to reduce my tension by use of music, deep breathing, or laughter.
17. While writing, I use words I recently learn in my writing.
18. While writing, I use phrase pattern in my writing.
19. I string together two or more known expressions into writing.
20. I apply previous knowledge or experience to produce my writing (e.g., use knowledge of Chinese *bei*-construction to produce passive clauses in English).
21. I use resources (e.g., dictionary, grammar book or something related to the topic I will write) to write.
22. I use translation skills to help me produce my writing.
23. While writing, I use a synonym to convey the intended meaning.
24. When I encounter a word I do not know how to express in my writing, I make up my own word to gain meaning.
25. When I cannot write difficult sentences, I use simpler, less precise, or slightly different ones.
26. While writing, I select the topic I can handle well to write.
27. I brainstorm to generate ideas for writing to bring out my own existing ideas and start expanding them as preparation for the future writing task.
28. While writing, I decide in advance which aspects of the writing (e.g., grammar, vocabulary, sentence structure) to focus on at given time.
29. While writing, I plan writing by taking into consideration the purpose of the task (including the type of written format and the needs of the potential audience).
30. In order to make my writing better, I use checklists to monitor my writing.
31. I am aware of my readers' thoughts and feeling while writing.
32. During my writing, I am not afraid of using different sentence patterns or vocabulary regardless of the possibility of making mistakes.
33. Before, during and after writing, I make positive statement to encourage myself to be confident.
34. While writing, I set a deadline and expect to reach some writing achievement in the period of time (e.g., finish writing an essay within 3 days).
35. While writing, I consult with proficient writers to enhance my writing.
36. After writing, I reread my writing to find out whether there is an inappropriate construction or vocabulary and revise it.
37. I review samples of my writing, note the style and content and assess progress over time.
38. After writing, I review my writing at regular intervals and make necessary revisions.
39. After writing, I actively find ways to help me learn writing, e.g., reading books about writing skills, talking about my writing problems with others, and share ideas with each other about effective strategies
40. I reward myself after completing a writing task.

Appendix II

Item, factor loading, explained variance, and Cronbach's α

	Items	Descriptive stats		Factors				
		M	SD	Cog ¹	Aff ²	SPO ³	P&E ⁴	SR ⁵
1	I string together two or more known expressions into writing. (LS19)	3.91	0.91	.76				
2	While writing, I use a synonym to convey the intended meaning. (LS23)	3.85	0.88	.70				
3	While writing, I use phrase pattern in my writing. (LS18)	3.76	0.93	.66				
4	While writing, I use words I recently learn in my writing. (LS17)	3.69	0.95	.64				
5	I apply previous knowledge or experience to produce my writing (e.g., use knowledge of Chinese <i>bei</i> -construction to produce passive clauses in English). (LS20)	3.57	1.12	.59				
6	When I cannot write difficult sentences, I use simpler, less precise, or slightly different ones. (LS25)	4.08	0.79	.59				
1	When I feel nervous before or during writing, I try to reduce my tension by use of music, deep breathing, or laughter. (LS16)	2.84	1.23		.67			
2	Before, during and after writing, I make positive statement to encourage myself to be confident. (LS33)	2.58	1.22		.65			
3	I pay attention to my feelings (e.g., tension) before writing. (LS15)	2.79	1.12		.59			
4	I reward myself after completing a writing task. (LS40)	2.38	1.19		.48			
1	I seek opportunities to practice writing (e.g., chatting with friends on LINE or other social media by typing English). (LS8)	2.79	1.20			.67		
2	I write language learning diaries to understand and to keep track of my thoughts, attitudes, and language learning strategies. (LS9)	2.11	1.05			.65		
3	I practice writing by writing in a real situation (e.g., writing a letter in English to friends). (LS6)	2.59	1.21			.62		
1	While writing, I decide in advance which aspects of the writing (e.g.,	3.03	1.14				.89	

(continued)

Items	Descriptive stats		Factors				
	M	SD	Cog ¹	Aff ²	SPO ³	P&E ⁴	SR ⁵
grammar, vocabulary, sentence structure) to focus on at given time. (LS28)							
2 I brainstorm to generate ideas for writing to bring out my own existing ideas and start expanding them as preparation for the future writing task. (LS27)	2.91	1.14				.51	
3 While writing, I plan writing by taking into consideration the purpose of the task (including the type of written format and the needs of the potential audience). (LS29)	3.50	1.06				.50	
4 In order to make my writing better, I use checklists to monitor my writing. (LS30)	2.23	1.14				.47	
1 While writing, I consult with proficient writers to enhance my writing. (LS35)	3.45	1.17					.84
2 I discuss my feelings and needs about writing with someone else. (LS10)	2.85	1.15					.73
3 To improve my writing, I ask my teacher to mark my writing errors and I correct them on my own. (LS12)	3.51	1.18					.70
4 I share my writing with my classmates and ask for feedback and comments. (LS11)	2.46	1.07					.67
5 After writing, I actively find ways to help me learn writing, e.g., reading books about writing skills, talking about my writing problems with others, and share ideas with each other about effective strategies. (LS39)	3.31	1.12					.58
6 While writing, I set a deadline and expect to reach some writing achievement in the period of time (e.g., finish writing an essay within 3 days). (LS34)	2.70	1.20					.56
7 I review samples of my writing, note the style and content and assess progress over time. (LS37)	3.39	1.10					.54
Explained variance			8.33	4.31	3.13	3.56	26.99
Cumulative explained variance			8.33	12.64	15.77	19.33	46.32
Cronbach's α			.85	.69	.72	.70	.86

(continued)

Items	Descriptive stats		Factors				
	M	SD	Cog ¹	Aff ²	SPO ³	P&E ⁴	SR ⁵
Construct reliability (CR)			.83	.69	.72	.74	.83
Average variance extracted (AVE)			.45	.36	.47	.42	.46

Notes: Cog¹ = Cognitive strategy use; Aff² = Affective strategy use; SPO³ = Seeking practice opportunities; P&E⁴ = Planning and evaluation; SR⁵ = Self-regulation

Appendix III

Error Coding System

Code	Definition
Mechanics	
Typ	Inaccurate word forms, including (1) misspellings, (2) a lack of or additional space in a compound, or (3) inaccurate tense or aspect markings.
Fmt	Format errors, including (1) no indentation, (2) wrong punctuation (e.g., non-restrictive relative clauses), (3) lower-case and upper-case errors, (4) improper paragraphing
Redn	Redundancy—redundant words or phrases
Lexical level	
LexForm	Correct spelling, yet they are erroneous due to similarity in forms or similarity in pronunciation, or incorrect part of speech
WW	Wrong word—incorrect use of words
WP	Wrong phrase—incorrect use of phrases (correct in form but semantically incongruous in context)
Ambg	Ambiguity—words/phrases that are ambiguous in meaning and cause incomprehensibility of the sentence
GenW	Generic words—words that are too general, not specific in meaning
Col	Collocation errors, including (1) violation of collocations, (2) incomplete phrasal verbs with no preposition or adverb
SmAn	Semantic anomaly—incorrect combination of words that leads to semantically anomalous or incomprehensible strings
Grammatical level	
Det	Determiner errors—incorrect use of determiners and articles
Num	Number errors—incorrect use of plural or singular forms of nouns
S-V Agm	Violation of subject-verb agreement
VbFm	Incorrect use of verb form, including wrong use of (1) tense, (2) aspect, (3) voice, (4) mood, (5) gerund or infinitive
ModE	Incorrect use of modals or auxiliaries
Comp	Errors in comparative forms
S-V Mis	Mismatch of subject and verb, including (1) incongruence between subject and verb, (2) lack of subject, (3) more than one subject

(continued)

Code	Definition
Arg Mis	Lack of argument
MuV	Multiple verbs—more than one verb in one sentence
RProE	Incorrect use of relative pronouns—(1) using wrong relative pronouns, (2) lack of relative pronouns
PE	Incorrect use of prepositions
Frag	Sentence fragments, including (1) incomplete clauses, (2) phrases with no verb
Clau	Dangling clauses that start with (1) a coordinating conjunction, or (2) a subordinating conjunction
Run-on	Including comma splices (i.e., overuse of commas to link independent clauses) and fused sentences (i.e., there is barely any comma between independent clauses)
WConj	Incorrect use of conjunctions, including using wrong conjunctions or lacking conjunctions
WOE	Word order errors—incorrect word orders
Textual level	
ProE	Incorrect use of pronouns, including (1) pronoun inconsistency, (2) improper use/omission of pronouns
OGL	Overgeneralization—sentences that involve overgeneralization
IRL	Sentences that are irrelevant to the development of the main idea
NoUnity	A supporting idea that is irrelevant to the topic
NoCohen	Inappropriate development of ideas in relation to the topic
NoConet	No connector—lack of connectors to combine sentences
WConet	Wrong connector— incorrect use of connectors between sentences
LogFal	Logical fallacy—(1) violation of logic, (2) incorrect cause-effect relation, (3) fail to represent ideas logically

References

- Anderson, N. J. (2005). L2 strategy research. In E. Hinkel (Ed.), *Handbook of research in second language teaching and learning* (pp. 757–772). Lawrence Erlbaum Associates.
- Bai, R., Hu, G., & Gu, P. Y. (2014). The relationship between use of writing strategies and English proficiency in Singapore primary schools. *The Asia-Pacific Education Researcher*, 23, 355–365.
- Brown, A. L., & Palincsar, A. S. (1982). Inducing strategies learning from texts by means of informed, self-control training. *Topics in Learning and Learning Disabilities*, 2, 1–17.
- Chan, S. H. C., Wu, R. Y. F., & Weir, C. J. (2014). *Examining the context and cognitive validity of the GEPT Advanced Writing Task 1: A comparison with real-life academic writing tasks*. LTTC-CRELLA Collaboration Project.
- Cheung, H., Chung, S. F., & Skoufaki, S. (2010). Indexing second language vocabulary in the Intermediate GEPT. In *Proceedings of the twelfth academic forum on English Language Testing in Asia: Continuity, innovation and synergy* (pp. 118–136). Language Training and Testing Center.
- College Entrance Examination Center [CEEC]. (n.d.). *Advanced Subjects Test (AST)—English*. Retrieved December 9, 2019, from <https://www.ceec.edu.tw/en/xmdoc/cont?xsmsid=0J180520414679660023>

- De Silva, R. (2015). Writing strategy instruction: Its impact on writing in a second language for academic purposes. *Language Teaching Research*, 19, 301–323.
- Hsiao, T.-Y., & Oxford, R. L. (2002). Comparing theories of language learning strategies: A confirmatory factor analysis. *The Modern Language Journal*, 86, 368–383.
- Huang, Y., & Chen, J. (2006). An empirical study on university students' extracurricular English writing strategies. *Foreign Language World*, 112, 35–40.
- James, C. (1998). *Errors in language learning and use: Exploring error analysis*. Longman.
- Kao, C.-W., & Reynolds, B. L. (2017). A study on the relationship between Taiwanese college students' EFL writing strategy use, writing ability and writing difficulty. *English Teaching & Learning*, 41, 31–67.
- Knoch, U., & Frost, K. (2016). *Linking the GEPT writing sub-test to the Common European Framework of Reference (CEFR)*. LTTC-GEPT Research Reports RG-08.
- Kunnan, A. J., & Carr, N. (2015). *A comparability study between the General English Proficiency Test-Advanced and the Internet-Based Test of English as a Foreign Language (iBT TOEFL)*. LTTC-GEPT Research Reports.
- Kunnan, A. J., & Wu, J. R. W. (2009). The Language Training and Testing Center, Taiwan: Past, present and future. In L. Cheng & A. Curtis (Eds.), *English language assessment and the Chinese learner* (pp. 77–91). Routledge.
- Kuo, G. (2005). *A preliminary corpus study on EFL test takers' writing proficiency*. Paper presented at the eighth international conference on English Language Testing in Asia.
- Language Training & Testing Center [LTTC]. (2003). *Concurrent validity studies of the GEPT intermediate level, GEPT high-intermediate level, CBT TOEFL, CET-6, and the English test of the R.O.C. College Entrance Examination*. LTTC.
- Language Training & Testing Center [LTTC]. (n.d.). *GEPT score reports*. <https://www.lttc.ntu.edu.tw/results.htm>
- Lei, X. (2016). Understanding writing strategy use from a sociocultural perspective: The case of skilled and less skilled writers. *System*, 60, 105–116.
- Lin, M. H. (2019). Correlations of English writing complexity, accuracy, fluency, and test scores: A case study of standardized writing test samples. *The Journal of Teaching English for Specific and Academic Purposes*, 7, 199–201.
- Naiman, N., Frohlich, M., Stern, H. H., & Todesco, A. (1978). *The good language learner*. Ontario Institute for Studies in Education.
- O'Malley, J. M., & Chamot, A. U. (1990). *Learning strategies in second language acquisition*. Cambridge University Press.
- Oxford, R. L. (1990). *Language learning strategies: What every teacher should know*. Heinle & Heinle.
- Qian, D. (2014). *A register analysis of advanced GEPT examinees' written production*. LTTC-GEPT Research Reports.
- Rubin, J. (1981). Study of cognitive processes in second language learning. *Applied Linguistics*, 11, 117–131.
- Sun, C.-Y. (2018). *EFL learners' use of lexical chunks on the GEPT Writing Test*. Unpublished master's thesis. Tunghai University.
- Tseng, C. C. (2016). Subsumable relationship among error types of EFL writers: A learner corpus-based study of expository writing at the intermediate level. *English Teaching and Learning*, 40, 114–151.
- Victori, M. (1999). An analysis of writing knowledge in EFL composing: A case study of two effective and two less effective writers. *System*, 27, 537–555.
- Weir, C. J., Chan, S. H. C., & Nakatsuhara, F. (2013). *Examining the criterion-related validity of the GEPT Advanced Reading and Writing Tests: Comparing GEPT with IELTS and real-life academic performance*. LTTC-GEPT Research Reports.
- Wong, L. L. C., & Nunan, D. (2011). The learning styles and strategies of effective language learners. *System*, 39, 144–163.

- Wu, J. R. W. (2008). An investigation of the relationships between strategy use and GEPT test performance. *English Teaching & Learning*, 32, 35–69.
- Wu, J. R. W. (2012). GEPT and English language teaching and testing in Taiwan. *Language Assessment Quarterly*, 9, 11–25.
- Wu, C-Y. (2016). *Thematic progression and cohesion in higher-rated and lower-rated essays in High-Intermediate GEPT Writing Test*. Unpublished master's thesis. National Taiwan Normal University.
- Yang, S. (2002). A comparison of writing strategies employed by successful and unsuccessful EFL writers. *Foreign Language World*, 3, 57–64.
- Yang, C. (2013). How Chinese beginning writers learn English writing: A survey of writing strategies. *Journal of Educational and Social Research*, 3, 9–18.
- Yu, G., & Lin, S-W. (2014). *A comparability study on the cognitive processes of taking graph-based GEPT-Advanced and IELTS-Academic Writing Tasks*. LTTC-GEPT Research Reports.

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