Journal of Second Language Writing 49 (2020) 100731

Contents lists available at ScienceDirect

Journal of Second Language Writing

journal homepage: www.elsevier.com/locate/jslw

Self-regulation and personality among L2 writers: Integrating trait, state, and learner perspectives

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ARTICLE INFO

Keywords:
Second language writing
Self-regulation
Personality
English as a foreign language
Mixed methods research

ABSTRACT

This study integrated trait, state, and learner perspectives to better understand the potential relationships between self-regulation in L2 writing and two personality factors (conscientiousness and neuroticism) in a university EFL context. Based on an innovative mixed methods design, data from cross-sectional and longitudinal samples were analyzed using quantitative and qualitative techniques, including structural equation modeling, visualization tools, and participant interviews. One novel finding of this study was that, from a trait perspective, conscientiousness positively contributed to self-regulation, whereas neuroticism negatively contributed to it. This analysis also supported a link between self-regulation and L2 writing. From a state perspective, in contrast, fluctuations were observed in self-regulation and personality factors over a 15-week period. Also reported are learner perspectives on self-regulation, which can offer practical insights for writing instructors and advisors. Themes included, among others: social engagement, composing processes, motivational issues, negative emotions, and rationalizing withdrawal. As a whole, this study has implications for understanding L2 writers' complex attributes in terms of structural relations, temporal dynamics, and writing processes.

1. Introduction

The characteristics of second language (L2) writers, as a key issue for language development and pedagogy, have been viewed from the perspective of individual differences (IDs; see Kormos, 2012). IDs, defined as "characteristics that make individuals dissimilar to each other" (Dörnyei & Ryan, 2015, p. 1), particularly in cognition or motivation, may impact how L2 writers develop and maintain control over processes contributing to successful writing. Studies of IDs in L2 writing are essential to understanding long-term developmental changes, as reflected in research on learning-to-write (e.g., Ortega, 2011) and also to understanding short-term, psycholinguistic processes, which seek to reveal a "blueprint of the L2 writer" (Schoonen, Snellings, Stevenson, & van Gelderen., 2009). Studies have sought to fill gaps in the areas that Kormos (2012) identified by examining L2 writing and various IDs (e.g., Csizér & Tankó, 2017; Michel, Kormos, Brunfaut, & Ratajczak, 2019). Often these studies adopt cross-sectional designs offering a useful snapshot of the relationships between IDs, conceived of as relatively stable traits, and outcomes important to L2 writing, but, owing to their design, such studies do not easily generalize across time (Lowie & Verspoor, 2019). As recognized in the wider field of L2 learning and pedagogy, IDs research has taken a complex, dynamic turn which challenges scholars to reconsider the stability of IDs (Dörnyei, 2017) and, by extension, to reconceptualize their influence on L2 writing. As an additional theoretical issue, it remains to be seen how studies of given populations from a trait (cross-sectional) perspective may or may not complement those from a state (longitudinal) perspective in this area.

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https://doi.org/10.1016/j.jslw.2020.100731
Received 30 June 2019; Received in revised form 13 April 2020; Accepted 13 April 2020
Available online 02 June 2020
1060-3743/

This article reports two separate empirical studies of self-regulation in L2 writing and personality factors (i.e., conscientiousness and neuroticism). Drawing on research in educational psychology, *self-regulatory capacity* (SRC) is a multi-faceted system of strategies applied to specific learning domains (Csizér & Tankó, 2017; Dörnyei & Ryan, 2015; Tseng, Dörnyei, & Schmitt, 2006) and *personality* means traits, adaptations, and views of self (DeYoung, 2011; Dörnyei, 2017; McAdams & Pals, 2006). *L2 writing* is "writing done in a language other than the writer's native language(s)/mother tongue(s)" (Silva, 2016, p. 19). These variables are of particular interest owing to theoretical and empirical accounts of their relationship (see the section "Trait versus State Lenses on Self-regulation and Personality" for details). Both studies were conducted in the same educational setting and were designed to address the overarching issue of understanding potential relationships between these variables, which have not been widely researched in L2 contexts. The specific problem addressed was, assuming SRC and personality influence L2 writing, what is the nature of their relationship, and what practical consequences arise from this?

The first study cross-sectionally investigated self-regulation and personality in a large sample ($N = 645$), while the second study used the same instruments longitudinally across approximately 15 weeks with three participants, who were interviewed immediately after the final questionnaire administration. This sequential, QUAN-QUAL design was employed with the intention of capturing insights into trait, state, and learner perspectives on the role of these IDs in L2 writing, based on a pluralistic view of innovative mixed methods designs (Riazi, 2016).

2. Literature review

2.1. Self-regulation in EFL writing contexts

Self-regulation and language learning strategies (LLS) have been extensively discussed and debated since Dörnyei (2005) sparked controversy by asking whether learning strategies existed. In sum, he argued that definitions of LLS did not differentiate between effortful language learning and use of LLS, nor could a given strategy be regarded as good or bad. For instance, in L2 writing, the use of an online dictionary may support beginners, yet impede fluency among advanced writers. Thus, "good" strategies always invoke learning and depend on the user. This critique contrasted LLS with psychological accounts of how individuals self-generate ideas pertinent to learning goals, and how they self-orient to feedback during learning, which form the basis of self-regulated learning (Zimmerman, 2001). According to Dörnyei and Ryan, self-regulation is "a dynamic construct that connects strategic capacity, intent, and learning behavior" (2015, p. 169; see below for relevant L2 studies). These developments notwithstanding, Oxford (1990) on LLS remains a seminal contribution, and the case for LLS research and strategy instruction (Oxford, 2017) is still strong. Griffiths (2019) concluded that, while issues remain, LLS and self-regulation are compatible strands of research. Throughout this debate, it has become clearer that LLSs exemplify, as Oxford noted in the title of her (2017) book, "self-regulation in context." Thus, at a conceptual level, self-regulation and LLS may be regarded as two sides of the same coin. Moving this discussion forward in L2 writing research will entail recognition of theoretical and practical issues, as well as studies examining the issues from cross-sectional and longitudinal perspectives.

In one cross-sectional study on self-regulation in L2 writing, Teng and Zhang (2016) reported on an investigation with 790 undergraduate students from Chinese universities. They used a questionnaire targeting EFL writing alongside a 1-h timed writing test from the International English Language Testing System (IELTS). Structural equation modeling (SEM) along with confirmatory factor analyses (CFA) was employed to test models of the data and evaluate their fit. Their best-fitting model revealed nine factors, conceptually related to four dimensions of self-regulation: (a) cognition (course memory and text processing), (b) metacognition (idea planning and goal-oriented monitoring), (c) motivation (interest enhancement, motivational self-talk, and emotional control), and (d) social behavior (peer learning and feedback handling). Within each of these four areas, one or more factors significantly predicted writing test scores.

Next, Csizér and Tankó (2017) sought to examine self-regulatory control in academic writing, and its relationships to motivation and anxiety among 222 English majors at a Hungarian university. These authors used a questionnaire comprised of scales measuring motivation, ideal L2 self, ought-to L2 self, language learning experience, international orientation, writing anxiety, and self-regulated behavior. The self-regulated behavior scale assessed five subcomponents identified in earlier studies of SRC in L2 vocabulary learning (Tseng et al., 2006). These were commitment control (used to preserve/enhance goals), emotion control (to manage emotions), environmental control (to create supportive environments), metacognitive control (to focus and monitor concentration), and satiation control (to deter boredom). Scores from a timed, high-stakes writing test were also collected. Various approaches, including cluster analysis, were used to probe writers' use of these strategies. Results indicated that student groupings varied in self-regulatory strategy use. Strategy use was also linked to increased motivation and self-efficacy, as well as decreased anxiety. However, no link between self-regulation and writing performance was found. This result, which contrasts with Teng and Zhang's (2016) aforementioned findings, suggests that contextual factors may play a major role in whether self-regulation skills impact L2 writing.

Turning to longitudinal studies, Nitta and Baba (2015) considered processes of self-regulation among two Japanese participants over 30 weeks. In each class, the participants produced written compositions in English, as well as subsequent reflections in Japanese, the content of which was coded as being relevant to three self-regulatory processes: goal-setting, self-observation, or self-evaluation. Based on additional interview data from one participant, two findings of interest emerged. First, despite repeating the same writing task, this individual varied in her self-regulatory processes over time. Also, the growth of her self-regulatory capacity coincided with the enrichment of her L2 self and the development of her L2 writing.

Han and Hiver's (2018) investigation focused on the psychological profiles, and changes therein, of 174 Korean middle school students, over 11 weeks. A questionnaire incorporating items to measure self-regulation, self-efficacy, and anxiety was administered

twice, and reflection journals and interview data were collected. Cluster analysis identified three groups, varying in degrees of self-regulation, self-efficacy, and anxiety. The authors inspected how these groups progressed through nine weeks of genre-based L2 writing instruction. Genre pedagogy supported the development of writers' self-regulatory capacity over time. Furthermore, despite increased anxiety at the end of the study, the authors argued that, "anxiety can co-exist in constructive configurations, such as alongside adequate levels of self-regulation and self-efficacy" (p. 57). However, they warned that this finding might not generalize to other contexts.

In another longitudinal study, Sasaki, Mizumoto, and Murakami (2018) employed a mixed methods design to examine the use of three specific strategies in 37 Japanese students' writing over a period of three and a half years. Rather than using a survey measure, self-regulation was observed via writing processes. Specifically, three strategies (global planning, local planning, and L1-to-L2 translation) were identified based on participants' retrospective accounts of their behavior while writing, which was video-recorded and played back for them to comment on. In this study, only global planning significantly increased in use over time. Also, learner factors, including L2 writing ability and L2 proficiency, differentially influenced use of the three strategies.

Lastly, Teng and Zhang (2020) examined the effects of strategy instruction on self-regulated learning among second-year English majors in China, using an intervention group ($n = 39$) and a control group ($n = 41$). Three main outcomes were assessed: writing scores, self-regulation strategies, and self-efficacy. After five months, both groups showed gains in writing; however, the intervention group outperformed the controls, as well as reporting increases in strategy use and self-efficacy.

These studies have demonstrated the practical implications of self-regulation research in L2 writing. For instance, the evidence for links between self-regulatory strategy use and writing performance (Teng & Zhang, 2016; see also Teng, Sun, & Xu, 2018) is noteworthy. There is also a need to understand how time spent in particular academic environments fosters self-regulation, resulting in use of specific strategies (Sasaki et al., 2018; Teng & Zhang, 2020). Furthermore, this growing body of studies underscores the involvement of learner factors (e.g., motivation, anxiety, and proficiency) in self-regulation (Csizér & Tankó, 2017; Han & Hiver, 2018), though these variables could be further extended to include additional characteristics of L2 writers.

2.2. Trait versus state lenses on self-regulation and personality

The nature of self-regulation in L2 writing is presently only beginning to be understood. Discussing whether self-regulatory capacity should be regarded as an ID factor, Dörnyei cautiously explained that it may be described as a trait or a state (2005). Yet, despite this caution, much of the L2 research to date has conceptualized self-regulation as a trait. This may be explicit, as when Tseng et al. (2006) referred to "learners' *innate* [italics added] self-regulatory capacity" (p. 79) or implicit, as when adopting cross-sectional designs that obscure development over time. Because self-regulation is viewed across multiple learning theories as an acquired capacity (Zimmerman, 2001), rather than an innate one, its development is a key research issue.

This issue is discussed here with respect to personality. In this study, personality refers to "an individual's unique variation on the general evolutionary design for human nature, expressed as a developing pattern of dispositional traits, characteristic adaptations, and integrative life stories, complexly and differentially situated in culture" (McAdams & Pals, 2006, p. 212). This definition is currently widely recognized (DeYoung, 2011; Dörnyei, 2017).

Specifically, this study addressed two personality factors: conscientiousness and neuroticism. Conscientiousness is associated with competence, self-discipline, and deliberateness. Neuroticism is associated with anxiety, self-consciousness, and impulsiveness (McCrae & Costa, 2003). These IDs were chosen for two reasons. First, considering the multi-faceted nature of personality, it was necessary to narrow the focus of the investigation. Secondly, in personality studies, these factors have influenced academic writers. Chamorro-Premuzic and Furnham (2003) found that British university students' academic performance on several measures, including essay scores, was positively associated with conscientiousness and negatively associated with neuroticism.

Two recent theoretical perspectives shed light on the potential interaction between self-regulation and these personality variables, as well as their development. For convenience, these are labeled the "traits in action" and "processing dynamics" approaches.

2.2.1. Traits in action

Based on the five-factor model of personality, McCrae and Löckenhoff (2014) specify that basic tendencies in openness, conscientiousness, extraversion, agreeableness, and neuroticism are manifested in characteristic adaptations, or enduring patterns of thought, including attitudes and habits, that are culturally influenced, and, subsequently, shape biography and self-concept. Within this system, "people's differential standing on the five factors determines their dispositional capacity for self-regulation" (pp. 148–149). Here, neuroticism and conscientiousness constrain self-regulatory capacity. They predict the use of certain types of strategies, as well as the likelihood of successful outcomes. These authors review supporting evidence, positing that self-regulation is facilitated when an individual is high in conscientiousness (i.e., a tendency to focus on goals, strive for achievement, and maintain order) and low in neuroticism (i.e., a tendency to experience distress, urges, and depression).

2.2.2. Processing dynamics

As a counterproposal, Morf and Horvath (2014) adopt a dynamic self-regulatory processing framework of personality, emphasizing the effortful construction of the self through patterns of self-signatures. Self-signatures are manifested in "if…then…" relations applied to situations (p. 120). Self-regulatory processes foster a desired self, rather than aspects of the self constraining such processes. These authors argue that self-signatures underlie personality types, and are driven by self-goal activation, monitoring, and self-regulation strategies. These are all embedded in social contexts. Self-regulation skills thus help moderate negative or positive influences of personality on goals, such as those related to L2 writing.

Clearly, these approaches differ in several ways and raise questions for L2 writing contexts. Is self-regulation partly constrained by personality traits, or does self-regulation moderate a writer's personality? Difficult questions of causation aside, L2 writing studies on self-regulation have yet to address personality. Therefore, we sought to explore their relationship and its practical consequences.

2.3. Rationale: complementarity in IDs research on L2 writing

Self-regulation is a multi-dimensional construct, linked to IDs in motivation and anxiety, and to L2 writing performance (under certain not yet fully understood conditions). In L2 writing research, its relationship with personality has not been examined, hence the need for further study. Recent publications show the potential of mixed methods research and longitudinal designs for addressing these issues (e.g., Sasaki et al., 2018). More work along these lines may inform theory, as well as curriculum design and writing instruction, particularly if it reveals LLS engaged in by writers whose self-regulation is strong. Seeking to foster self-regulation can enhance L2 writing pedagogy. Andrade and Evans (2013) offered activities to develop self-regulation, relating it to writers' motives, methods, time management, physical and social surroundings, and performance, but questions remain regarding the influence of IDs. A more thorough research base may contribute to practical efforts. Furthermore, it is unclear whether SRC should be regarded as trait or state. When considering self-regulation in L2 writing, this issue is complicated because writing ability develops incrementally over time. Particularly in this respect, this study merely represents an attempt.

Just as we have acknowledged the compatibility of LLS and self-regulation (Griffiths, 2019), so must we acknowledge the complementarity of cross-sectional and longitudinal studies. As the review above shows, both types of studies have improved understanding in this domain. Generally speaking, these studies illustrate how, as pointed out by Lowie and Verspoor (2019), cross-sectional designs serve to uncover structural relations between variables, while longitudinal designs offer insight into their temporal dynamics. One type of study design does not easily generalize to the other, which is referred to as the ergodicity problem. Results at the group level cannot, in most cases, explain change over time; however, it is both variability within student groups *and* developmental changes that concern educators. Improvement in L2 writing happens within groups. It occurs over semesters and years of instruction. Learner perspectives influence it, implying the need for a person-in-context view (Dörnyei & Ryan, 2015). For these reasons, this project sought to combine state, trait, and learner views on personality, self-regulation, and L2 writing.

2.4. Research questions and hypotheses

Based on the literature, four research questions guided this project:

1. What is the relationship between SRC in L2 writing, conscientiousness, neuroticism, and self-reported writing ability? It was hypothesized that, in Study 1, conscientiousness would positively contribute to SRC, whereas neuroticism would negatively contribute to it. Furthermore, we expected SRC to be positively linked to self-reported writing ability.
2. Do relationships between SRC in L2 writing and personality change over one semester of instruction? This was a focus of Study 2. No hypothesis was formulated due to lack of consensus regarding the dynamics of these interactions. Moreover, the timescale of any changes in these relationships has yet to be explored in L2 writing.
3. How do students view their ability to self-regulate in L2 writing? This question was formulated in order to gain further perspective on the results of Study 2. Specifically, we focused on changes that may have occurred in their approach to writing and any specific strategies that they were conscious of using during the writing of their assignments.
4. How do the findings of Study 1 (adopting a trait perspective) and Study 2 (adopting state and learner perspectives) converge or diverge?

3. Study 1: a trait perspective

Study 1 was designed to the model structural relations between SRC and personality in L2 writing. Specifically, we hoped to identify latent variables indicated by the questionnaires used in the research and seek confirmation of the relations between these variables, based on the predictions made in regard to Research Question 1, through statistical modeling (i.e., SEM).

4. Methods

4.1. Participants and setting

The participants in this study had volunteered to take a practice English test and a survey (described below) offered by the Academic Success Center to incoming freshman. They were informed in writing that the anonymized survey results would be used in research on English education and signed a form to indicate their consent. Participants filled out all materials during a single session held on campus during April, 2018. Of the total of 645 participants, 74% were female and the rest male. They were majoring in English (n = 364), International Communication (n = 110), and Asian Languages (n = 171).

4.2. Instruments

4.2.1. Self-regulation scales

To measure self-regulatory strategy use, we adapted Tseng et al.'s (2006) SRC in vocabulary learning scale (SRCVOC), which has previously been validated in EFL writing contexts (Csizér & Tankó, 2017). As mentioned, this instrument assesses the use of strategies to regulate commitment, metacognition, satiation, emotion, and environment. Each scale contained four items, including "When writing, I persist until I reach the goals that I make for myself" (Commitment control), "When writing, I have special techniques to keep my concentration focused" (Metacognitive control), "During the writing process, I feel satisfied with the ways I eliminate boredom" (Satiation control), "When I feel stressed about writing, I know how to reduce this stress" (Emotion control), and "When I write, I look for a good learning environment" (Environmental control). To adapt this instrument, two changes were made: (a) references to vocabulary were replaced with writing and (b) the instrument was translated into Japanese and reviewed by proficient users. An earlier pilot study with 56 English majors at the same university found acceptable scale reliability and established the predictive validity of this instrument with a self-report measure of L2 writing (Jackson, 2018).

4.2.2. Personality scales

The two personality traits, conscientiousness and neuroticism, come from the ten aspects of the Big Five proposed by DeYoung, Quilty, and Peterson (2007). In their model, conscientiousness is further divided into industriousness and orderliness scales and neuroticism into volatility and withdrawal scales. Each scale was assessed based on 10 statements such as "I get things done quickly" (Industriousness), "I follow a schedule" (Orderliness), "I get upset easily" (Volatility), and "I am filled with doubts about things" (Withdrawal). These scales were also translated into Japanese and reviewed by proficient users.

4.2.3. Self-reported writing ability scale

Student's writing ability was assessed through self-report. Students were asked to report their perceived writing ability based on a 6-point Likert scale, as follows:

I can write a coherent text of my interest in English.	absolutely agree 6	agree 5	somewhat agree 4	somewhat disagree 3	disagree 2	absolutely disagree 1

To facilitate comprehension, we administered all questionnaire items in Japanese, which the participants were fluent in.

4.3. Confirmatory Factor Analysis (CFA)

To examine the factorial relationships between the subsumed traits of SRC, personality, and self-reported writing ability, we computed a confirmatory factor analysis (CFA). The traits were entered into the model together with their observed measures, and the hypothesized model was tested using EQS 6.1 (Bentler, 2005). Among the various fit indices, we relied specifically on CFI and SRMR in our study to argue for model fit because they are known to be less sensitive to sample size and model complexity. Hu and Bentler (1999) recommend CFI over 0.95 and SRMR below 0.08 as cutoff criteria for acceptable model fit.

5. Results

5.1. Descriptive statistics and internal consistency

Table 1 shows the descriptive statistics and internal consistency estimates of the five SRC scales.

While three of the five Cronbach's alpha coefficients were above the acceptable cutoff of 0.70, two of them were slightly lower than the criterion (see Dörnyei, 2001, on internal consistency reliability).

Two personality constructs, each with two subscales were also assessed for their descriptive statistics and internal consistency (Table 2). Their reliability coefficients ranged between 0.74 and 0.84, indicating that all four scales were above the cutoff of 0.70 for internal consistency.

The estimation of self-assessed writing ability resulted in $M = 3.46$ and $SD = 1.04$. The distribution statistics showed that the data were not completely normal at skew. $= -2.90$ and kurt. $= 0.13$. As for its reliability, writing was one of five abilities self-

Table 1
Descriptive Statistics and Internal Consistency of Self-regulatory Capacity.

Self-regulatory capacity	*M (SD)*	Min-Max	Cronbach's alpha
Commitment	3.18 (0.81)	1 – 6	0.72
Metacognition	3.14 (0.87)	1 – 6	0.72
Satiation	3.28 (0.94)	1 – 6	0.76
Emotion	3.26 (0.85)	1 – 6	0.67
Environment	3.62 (0.85)	1 – 6	0.68

Table 2
Descriptive Statistics and Internal Consistency of Personality Traits.

Personality traits	Subscales	*M (SD)*	Min-Max	Cronbach's alpha
Conscientiousness	Industriousness	4.03 (0.86)	1 – 6	0.84
	Orderliness	4.15 (0.71)	1 – 6	0.76
Neuroticism	Volatility	3.01 (0.81)	1 – 6	0.74
	Withdrawal	3.69 (0.90)	1 – 6	0.79

assessed during the survey administration (others included lecture listening, reading, discussion, and listening to media). The Cronbach's alpha of this 5-scale measure resulted in 0.86, and the corrected item-total correlation of the writing scale was 0.64, demonstrating an acceptable convergence between the writing scale and the other proficiency scales as a whole.

5.2. Model evaluation

This analysis used SEM to test the hypothesized relationships between the observed scores and latent variables (see the structural model depicted in Fig. 1) and test the model fit using a CFA (Schoonen, 2015). Multivariate normality was tested with the data based on Mardia's coefficent for multivariate kurtosis. Mardia's coefficent was at 32.81, and the normalized estimate was at 26.94, which were much larger than its recommended cutoff of 3, hence suggesting the non-normality of the data distribution. Therefore, we employed the robust maximum likelihood (ML) method in our CFA analysis to deal with the multivariate non-normality of the data, as recommended by In'nami and Koizumi (2011).

The hypothesized model in Fig. 1 represents the structural relationship between SRC and the two personality traits of neuroticism and conscientiousness. The model estimation resulted in χ^2 (27) = 127.56; $p < 0.01$; NFI = 0.96; NNFI = 0.94; CFI = 0.97; RMSEA = .076 [0.06:0.09]; SRMR = 0.03. Especially, the high values of CFI (0.97) and the lower value of SRMR (0.03) than the recommended cutoff of 0.08 (Hu & Bentler, 1999) indicate a good model, demonstrating dependable regression weights and correlation coefficients.

In the CFA, all five measures highly loaded on self-regulation. Among them, commitment (0.87*), satiation (0.88*), and emotion (0.87*) showed the most significantly unique contribution to SRC while environment contributed the least. Neuroticism and conscientiousness were negatively associated with each other ($r = -0.43$). Accordingly, their influence was also contrasting with respect to SRC: conscientiousness negatively influenced SRC and neuroticism positively did. Although the size of their association

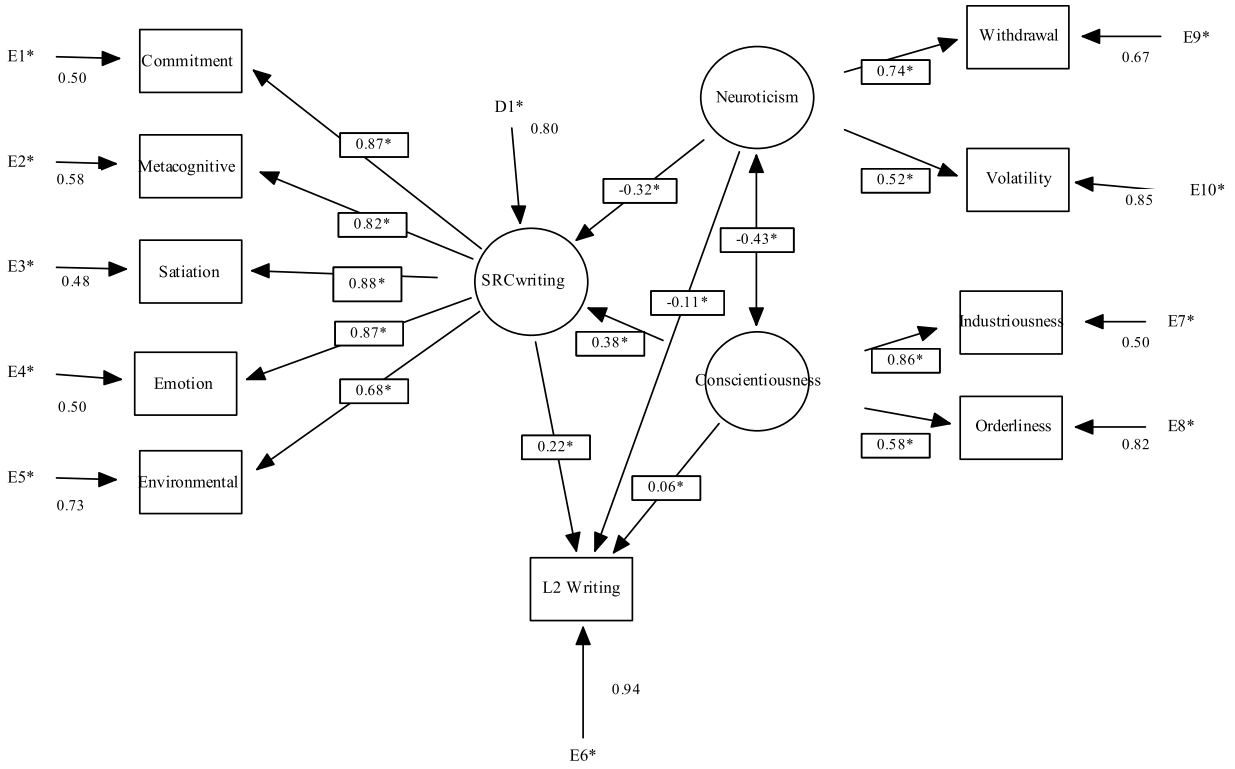

Fig. 1. Hypothesized Model Representing the Relationships between Self-Regulatory Capacity in Writing, Personality (Neuroticism and Conscientiousness), and L2 Writing Ability.

with students' perception of their writing ability was relatively weak, neuroticism contributed to writing negatively while conscientiousness did so positively. Finally, although marginal, self-reported writing ability was positively related to SRC, while also being statistically significant, suggesting that the effect of SRC on students' L2 writing (0.22*) is never negligible. These findings support the aforementioned hypotheses (see Research Question 1).

6. Discussion

The purpose of Study 1 was to examine the relationship between SRC in L2 writing, conscientiousness, neuroticism, and self-reported writing ability. Based on Chamorro-Premuzic and Furnham's (2003) findings, we hypothesized that conscientiousness would positively contribute to SRC, whereas neuroticism would negatively contribute to it. We also predicted that SRC would be linked to L2 writing ability, based on previous studies (Teng & Zhang, 2016; Teng et al., 2018).

The structural model in Fig. 1 that we examined using a CFA helped test our predictions, in line with previous literature. The model fully identified with good model fit in our study indicates that the unique set of the parameters specified in the model are consistent with the data (Byrne, 2010), thereby demonstrating that SRC in L2 writing is a multifaceted construct, linked to self-assessment of writing. The model also informs us that it can be extended to L2 writing using the five aforementioned sub-traits: commitment, metacognitive, satiation, emotion, and environmental control (Csizér & Tankó, 2017; Tseng et al., 2006). The results evidently suggest that personality and SRC in L2 writing are linked in that: (a) conscientiousness (industriousness, orderliness) is positively associated with self-regulation and (b) neuroticism (volatility, withdrawal) is negatively associated with it.

Also, the marginal, yet significant association of self-regulation with students' perception of their writing ability suggests that the effect of self-regulation on students' development of L2 writing (0.22*) is noteworthy. Therefore, individual students may need support to become more self-regulated L2 writers. As for caveats, it should be noted that the significance of these results might be an artifact of the large sample size. Also, the effect sizes we reported need to be considered in light of field-specific benchmarks. Plonsky and Oswald (2014, p. 889) considered correlation coefficients (*r*s) close to 0.25 as small, 0.40 as medium, and 0.60 as large. The links between personality, self-regulation, and writing observed here must therefore be regarded as small.

7. Study 2: state and learner perspectives

Study 2 was designed to probe the temporal dynamics of, and learner views on, SRC and personality in L2 writing. It comprised a longitudinal case study (Yin, 2015) incorporating data from the questionnaire from Study 1, as well as follow-up interviews. The goals at this stage were to expand on Study 1 by gathering data on SRC and personality over time and to shed further light on these issues by obtaining participant views, thus providing insight into Research Questions 2 and 3.

8. Methods

8.1. Participants and setting

All participants in Study 2 were first-year students enrolled in the first author's EAP class. This yearlong course aimed to prepare students for upper-level English-medium courses, by encouraging academic reading and writing, including persuasive and expository essays. Lessons incorporated prewriting, planning and drafting, revising, feedback, and editing (Ferris & Hedgcock, 2005). All assignments were submitted to ETS Criterion® Automated Writing Evaluation service and then read, evaluated, and commented on by the instructor. Students evaluated their own progress using a strengths and weaknesses chart (Andrade & Evans, 2013) after each assignment.

Of five students who initially volunteered, three completed all questionnaires (see Table 3) and were subsequently interviewed. Permission to use their data was obtained through informed consent. The participants were L1-Japanese speaking females, aged 18–19, majoring in English. They had attained a top score (6 out of 6) on each of three writing assignments, as scored automatically by Criterion. This was not unusual as most students in the class achieved a 6 at least once. Data collection occurred on campus between September and January of 2018.

Table 3
Questionnaire Administration Timeline.

Questionnaire #	Date given	Writing course activities and topics
1	9/25/18	Term start
2	10/4/18	WA#1: *Money and success* Introduction
3	10/18/18	WA#1 Submission deadline
4	11/8/18	WA#2: *Reasons for attending college* Introduction
5	11/27/18	WA#2 Submission deadline
6	12/11/18	WA#3: *Reasons for academic success* Introduction
7	12/18/18	WA#3 Submission deadline
8	1/15/19	Term end

Note. WA = Writing Assignment.

8.2. Instruments

8.2.1. SRC and personality scales

The SRC and personality scales administered to participants in Study 1 were given eight times in total (see Table 3). Data collection was timed to coincide with the beginning and end of both the semester and of three essay-length assignments. This timing helped to ensure that the research was integrated with writing instruction in our teaching context. In addition to its spacing (there was, at minimum, a weeklong gap between each administration), to avoid familiarity or fatigue, questionnaires were distributed at the start of class on the specified date and students were asked to complete and return them before the end of class (they were not timed). A writing background survey (Sasaki & Hirose, 1996) was given once. These instruments were in Japanese.

8.2.2. Interviews

The three participants joined an interview at the writing instructor's request, on the date of the final questionnaire administration (Writer 1), or one day later (Writers 2 and 3). English was used, as this was the language of communication between these individuals and one in which all users were proficient, although Japanese was also used occasionally. Prior to the interviews, sample questions were emailed to the interviewees, partly as a reminder of the scheduled meetings. These questions emphasized aspects of L2 writing (e.g., strategy use, improvement, motivation). The message indicated that they need not prepare anything, and that their participation and answers would not affect course grades (assignment grades had been completed and returned prior to the interviews). It was felt that due to the researcher/teacher's familiarity with the participant/student's work, they would not rehearse their responses or ask others how to respond. During the interviews, participants were asked questions and shown their completed questionnaires and essays, automated and instructor feedback, and other materials used in writing lessons, to prompt memory recall. The researcher focused on (a) asking brief questions, (b) listening carefully to and following up on answers, and (c) developing and verifying interpretations (Brinkmann & Kvale, 2014, p. 192).

8.3. Analyses

This longitudinal study adopted Complex Dynamic Systems Theory (CDST) as a theoretical and methodological framework (Verspoor et al., 2011). In CDST, a system is a constellation of entities functioning as a whole, embedded in larger systems and comprised of subsystems (Larsen-Freeman, 2017). Under this view, as SRC develops, it may promote a more tangible L2 self-system (Nitta & Baba, 2015, p. 392). Given our focus on the relationship between SRC and personality over time (Research Question 2), this study used moving correlations to visualize relationships between SRC and personality over 15 weeks. In these analyses, the relationship between two variables over time can be defined as supportive or competitive (Verspoor & van Dijk, 2011). Supportive growers (i.e., positively correlated variables) develop together and competitive growers (i.e., negatively correlated variables) inversely affect each other. Below, Figs. 2a–4a provide line graphs of the average scores for each participant, based on the 6-point Likert scales used for these items. Graphs of the moving correlations are displayed in Figs. 2b–4b. These graphs used a window size of 5 timepoints, as recommended by Verspoor and van Dijk (2011) and shown on the x-axis. The y-axis is based on the correlation coefficient.

The interview analyses aimed to afford contextualized views of self-regulation (Oxford, 2017) and personality (McAdams & Pals, 2006). This entails going beyond traits and adaptations to investigate personal narratives and situational factors. Research Question 3 concerned students' own views regarding their ability to self-regulate in L2 writing. To highlight participants' accounts, the audio-recorded interviews (lasting approximately 2.5 h in total) were transcribed and thematically analyzed using deductive coding (Polio & Friedman, 2017). First, to ensure meaningfulness in relation to the overall study, the interviewer applied a start list of codes for the variables measured by the SRC subscales (commitment, metacognitive, satiation, emotion, and environmental) to the transcriptions. Review and evaluation showed that participant statements frequently suggested use of more than one SRC component. The themes noted below therefore reflect the start list and describe in-context applications of LLSs, as well as changes over time. An example would be Writer 1's comments regarding her overall process (see Excerpt 1). These were initially coded as pertaining to the environmental and commitment components.

9. Results

This section integrates data from the three participants to offer a dynamic, person-in-context view of self-regulation and personality. For each participant, the following sections provide participant background, questionnaire results, and interview comments. Results are provided regarding a range of LLS.

9.1. Writer 1

The longitudinal data for Writer 1 shown in Fig. 2a indicated consistently high SRC scores. Conscientiousness was stable with no difference between the beginning and the end of the study. Scores for neuroticism were less stable. In particular, peaks were observed twice during the term, followed by a slight decline at the end. Regarding the moving correlation, it should be noted that the use of this visualization technique assumes variability in the data. The fact that Writer 1's scores for SRC were consistently high (see Fig. 2a) makes Fig. 2b difficult to interpret in this case. When asked, during the interview session, whether her self-regulation ever decreased, she replied, "sometimes…after a long break."

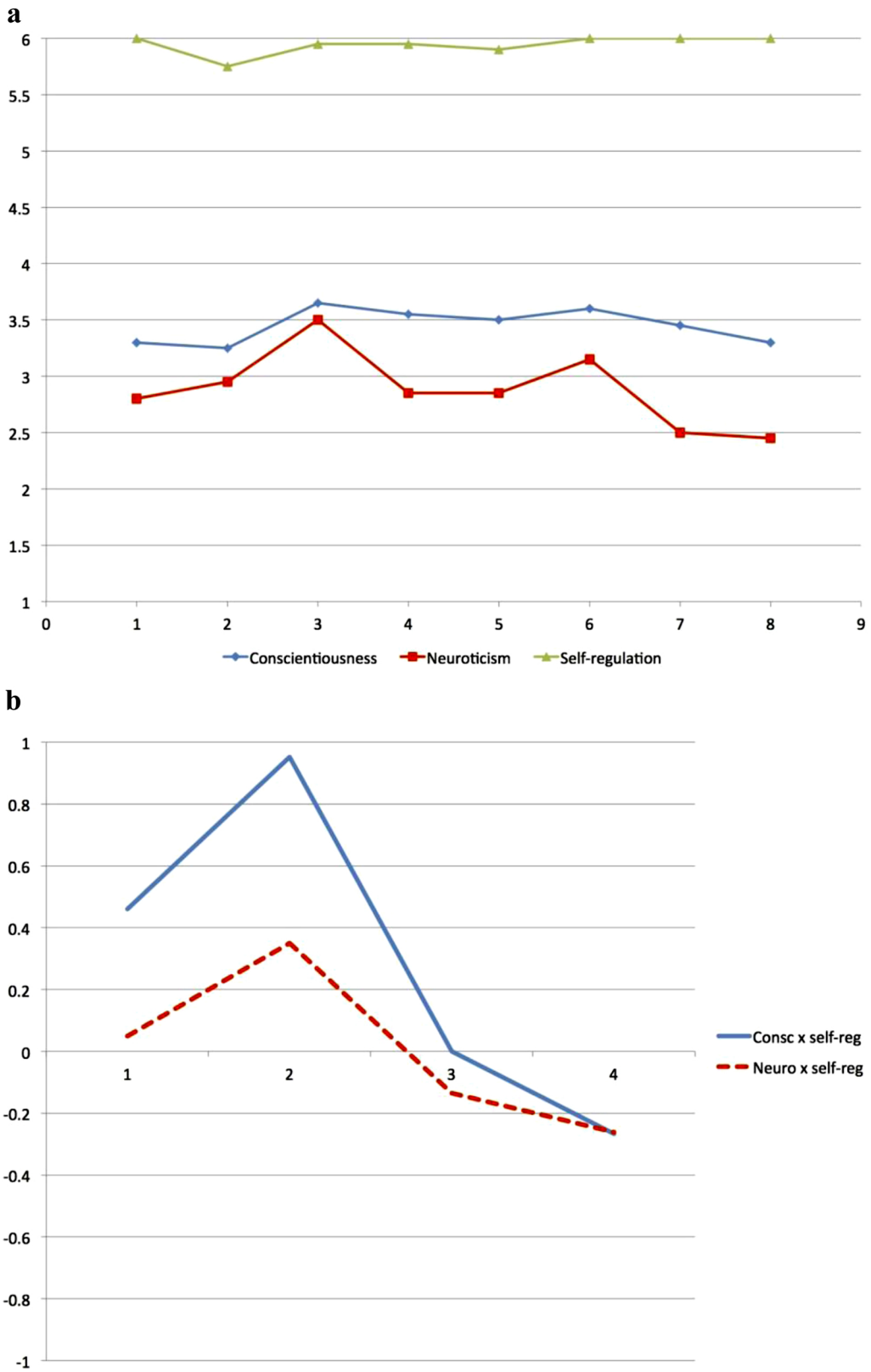

Fig. 2. (a) Writer 1 Raw Scores for Conscientiousness, Neuroticism, and SRC over Time (b) Writer 1 Moving Correlations between Conscientiousness, Neuroticism, and SRC.

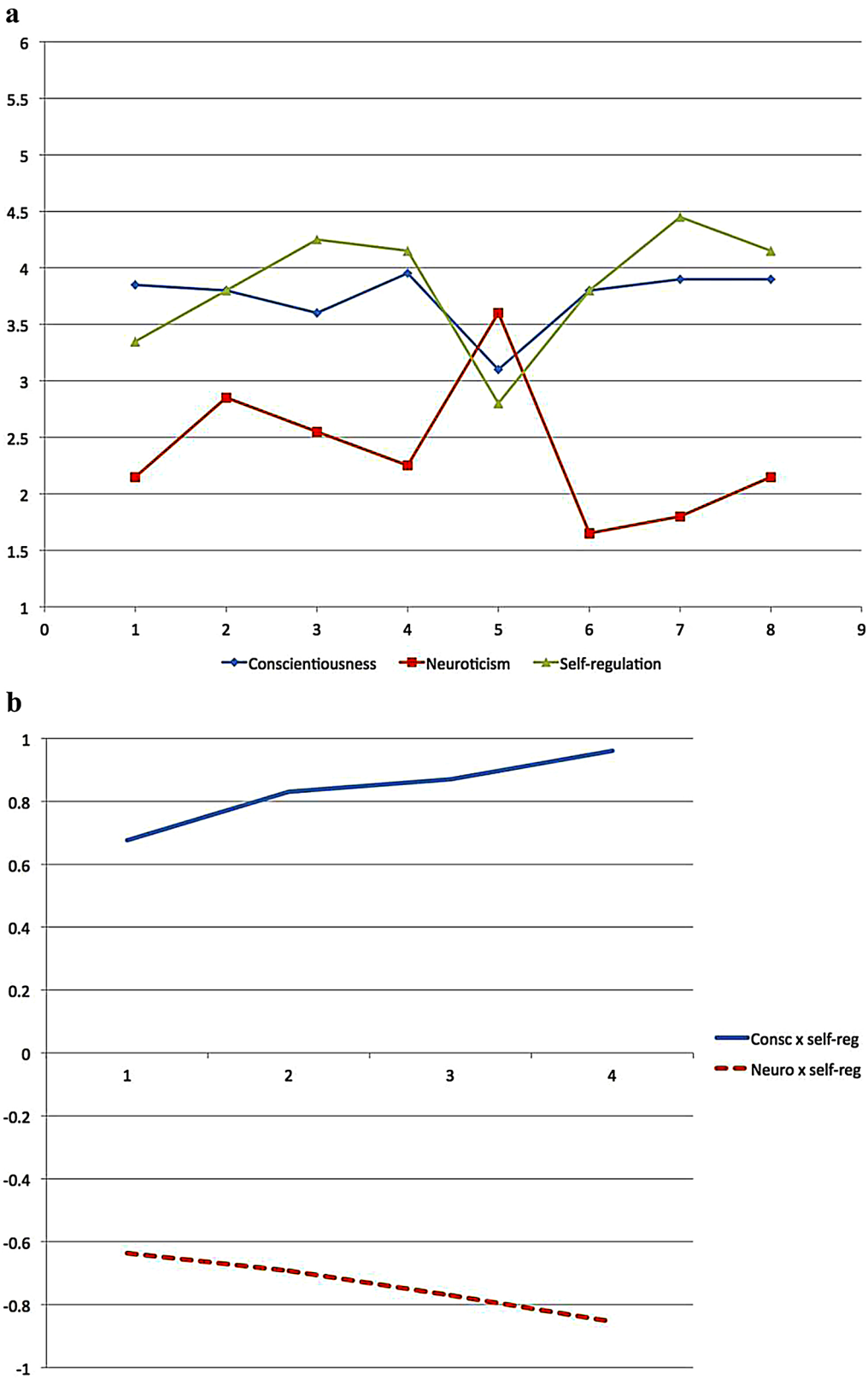

Fig. 3. (a) Writer 2 Raw Scores for Conscientiousness, Neuroticism, and SRC over Time (b) Writer 2 Moving Correlations between Conscientiousness, Neuroticism, and SRC.

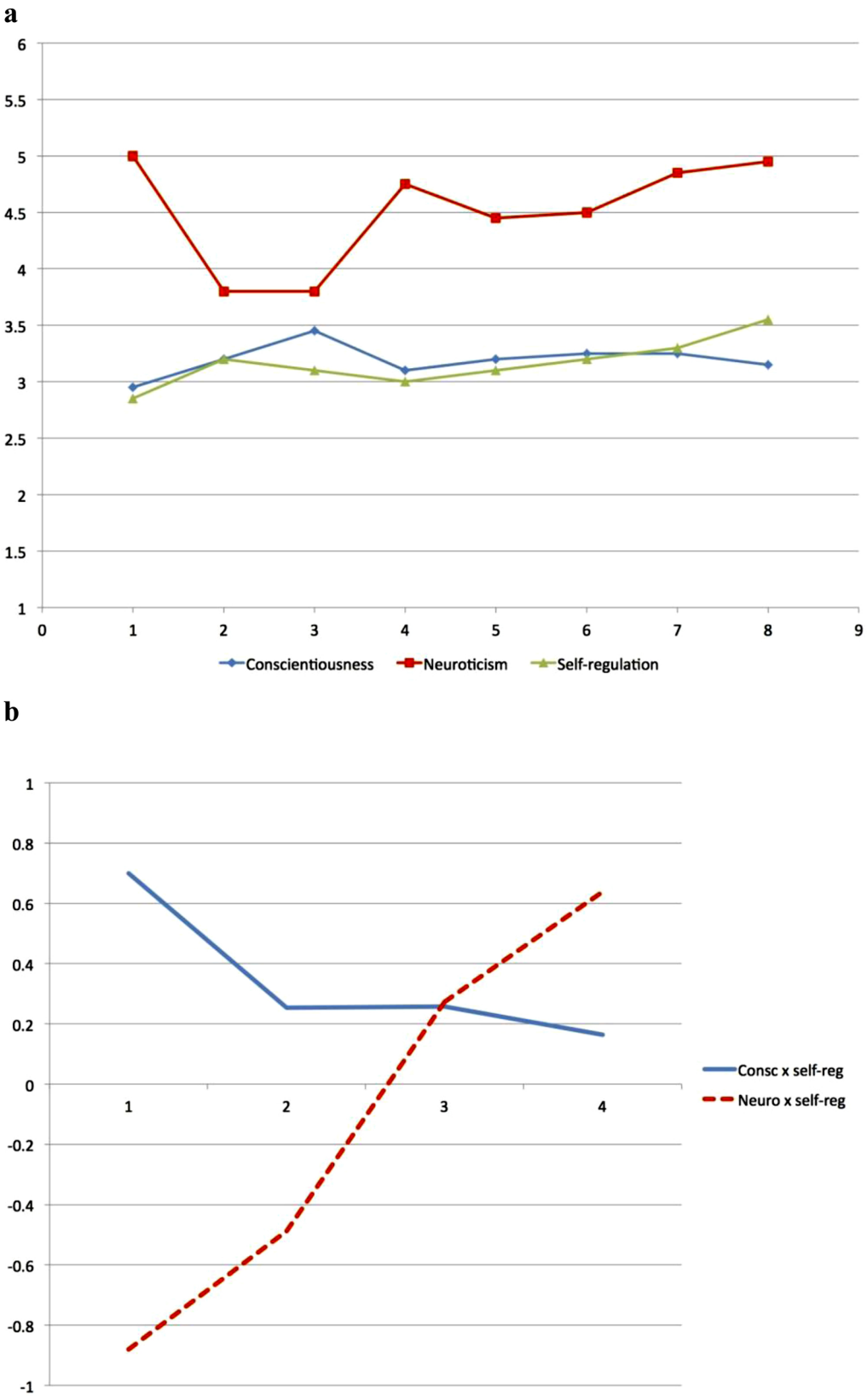

Fig. 4. (a) Writer 3 Raw Scores for Conscientiousness, Neuroticism, and SRC over Time (b) Writer 3 Moving Correlations between Conscientiousness, Neuroticism, and SRC.

Writer 1's consistently high SRC, as shown in Fig. 2a, often seemed connected to social interaction outside of the EAP class. Several interview excerpts demonstrate her commitment to engaging with on-campus writing resources. To begin, she confirmed her approach to writing the essays as shown in Excerpt 1, which involved visiting the writing center twice per assignment.

Excerpt 1: Writer 1 (W1)'s overall process
W1: so at first after I get homework I made reservation with teachers and ask some questions about topic and collect some information and draft by myself and finish writing and after I finish writing I show it to teachers.
Interviewer (I): I see
W1: and ask how they think about my essay
I: great. So were you doing that at the [self-access center]?
W1: mm hm
I: how did you do that?
W1: learning advisor or writing help
I: I see what you mean. Do you go to the [writing center] website?
W1: yes
I: and you make an appointment?
W1: un [yes]
I: and then you write?
W1: yes
I: and then you go back and talk to them?
W1: yes
I: wow okay…did you do that for all three assignments this time?
W1: yeah yes

This writer also reported how the writing tutor's advice contributed to her ability to plan and her writing fluency over the course of the three assignments, as Excerpt 2 shows.

Excerpt 2: Planning and fluency
W1: and I went back and fixed some things, but she [the writing advisor] said I should um like write some main points like one two three and make some plan, like structure before I get to work
I: okay, so that's what you did with the advisor?
W1: yeah
I: okay good….so things seemed to get easier…is that right?
W1: yeah and they took less time the more I write. The first essay I took maybe a week to finish my essay, but the last one it took only 1 or 2 days
I: …okay…and the second one? What about that?
W1: uhh 4 days…or…
I: hm
W1: since I got used to writing essay it [kept] getting easier and easier

Furthermore, Writer 1 offered a specific example of using social support to overcome limitations in vocabulary knowledge when writing, in Excerpt 3.

Excerpt 3: Choosing vocabulary
I: Do you ever feel that it's hard to express yourself or it's not the right word?
W1: un [yes]
I: what do you do then?
W1: ask teachers or friends and ask them some list of vocabulary and I choose the one that fits my feeling
I: okay, so you…tell them the idea and you get a list of words and you choose one?
W1: yeah

A final example illustrates how Writer 1 readily extends her approach of reaching out to others for writing assistance to the hypothetical scenario of writing about a challenging topic:

Excerpt 4: Dealing with a difficult topic
I: if you had a topic to write about, that you didn't like at all, what would you do?
W1: mmm…mmm it depend on topic. If I don't like topic because it's too difficult I would…um…ask friends who is familiar with the topic

Overall, Writer 1 appeared to have established coherence between her high self-regulatory ability, stable personality, and writing, the value of which she explained as follows: "through writing I realize that I have some ideas."

9.2. Writer 2

Writer 2's raw data showed moderate scores on SRC and conscientiousness, with lower scores on neuroticism. However, there was

an exception to this general pattern around the middle of the data collection period, just after the second writing assignment (on 'Reasons for attending college') was due. At this point, Writer 2's neuroticism scores increased sharply, whereas SRC and conscientiousness decreased. Potential reasons for this change are considered (see Excerpts 6 and 7). Overall, Writer 2 showed a more than half-point increase in SRC scores from the beginning to the end of the study.

As shown in Fig. 3b, the relationship between self-regulation and conscientiousness in Writer 2's case was consistently supportive; these two variables were always positively correlated (Verspoor & van Dijk, 2011). Interview comments lend further insight into this relationship. She connected a desire for good grades, her own personality, and her future career and personal goals to L2 writing, as indicated in Excerpt 5.

Excerpt 5: What motivates you?

I: okay so um …what was motivating you when you were writing?
W2: to get good grades
I: then why do you wanna get good grades?
W2: before I entered university I'm thinking that go study abroad then to do that I have to get good grades
I: okay
W2: then also, it's my personality but I want to be a good student all the time. Maybe that's the reason.
I: now, in the class, I know you said you wanted to become a customs officer…did you ever think of how your writing is connected to that goal?
W2: um yeah, I had that dream since I was five years old
I: wow…
W2: so I always have that dream in my mind
I: so is everything connected to that goal for you?
W2: yes yes
I: and how about the writing? Is there any way you can connect it?
W2: mm-hm yeah sometimes when I write about money and success or some future thing I always think about how I can become a customs officer or good adult

The data also showed (Fig. 3a) that Writer 2 reported a decline in SRC and conscientiousness after Writing Assignment 2, and reported increased neuroticism. The interview session addressed these fluctuations, resulting in the exchange in Excerpt 6.

Excerpt 6: Reason for changes

I: okay um and then after this one did you did anything change in your opinion, after the second essay?
W2: umm no not big changes
I: mm-hmm
W2: but as I said before I could reflect my first feeling of after entering university, so at that time I my motivation get lower….by writing that essay I could remind the feeling of the first time I entered university
I: so you said your motivation got lower?
W2: at that time
I: Why was it lower?
W2: um, because I get used to life in university and I thought it's kind of boring

This writer explained that she had had some initial regret over her choice of university. Thus, Writing Assignment 2, on the topic of reasons for attending university, seemed to evoke difficult memories. This was taken up further in Excerpt 7, which exemplifies how parental support may foster emotional regulation.

Excerpt 7: Talking to parents

I: did you talk to people about that?
W2: yeah to my mother
I: to your mom? What did she say?
W2: it's your fault that I entered university [laughs] so you have to do in that situation what you can do, yeah, do your best

Finally, it was evident that despite this feeling, Writer 2 deployed cognitive and emotional regulation to stay on course toward her goal of achieving good grades, as shown in Excerpt 8:

Excerpt 8: Staying on course

I: I think this is really an interesting point in time for you. Did that affect other things? Like we talked about before, concentration or emotion? Did it affect those things?
W2: No because um even though I feel I regret that I enter this university, the feeling [that] I wanted to get good grades didn't change

In sum, apart from a temporary decrease in SRC co-occurring with an increase in neuroticism, Writer 2 was conscientious and gradually increased in SRC. These two variables were consistently in a supportive relationship. As she herself noted: "it's my personality but I want to be a good student all the time."

9.3. Writer 3

The data provided by Writer 3 showed a different pattern to that of Writers 1 and 2, in that scores for neuroticism were consistently higher than those for SRC and conscientiousness, which were moderate (Fig. 4a). Except for neuroticism, these scores did not fluctuate widely. Yet, despite a 1-point decrease near the beginning of the term, neuroticism returned to same level by the end of the term. On the other hand, Writer 3's average SRC score increased from below 3 to 3.5 across the 15 weeks.

The moving correlations for Writer 3 are somewhat perplexing. As shown in Fig. 4b, the relationship between conscientiousness and SRC, as predicted, is consistently supportive, even though its strength declined over time. Also as predicted, neuroticism and SRC were initially in a competitive relationship (i.e., they were negatively correlated; Verspoor & van Dijk, 2011). However, by the middle of the study, this relationship became positive, and remained that way at the end (facets of neuroticism that may support SRC in L2 writing are discussed later).

Based on these results, the interview probed, among other questions, emotion control as relevant component of SRC in this case, where the writer was consistently successful, yet reported a higher degree of neuroticism than her peers. When this topic was introduced, the writer described sources of anxiety and resultant processes (Excerpt 9).

Excerpt 9: Sources of negative emotions and writing processes

I: …and managing emotions. When you're writing do you have any difficulty?
W3: ahh…when I write something in English I feel like each sentence might be wrong, or I always get worried that this sentence might be this sentence doesn't make any sense for native English speaking teachers hmm
I: okay
W3: and I feel too nervous and sometime I I researched the grammar for like, two hours
I: that's a long time. For one sentence?
W3: no no
I: Or for the whole thing?
W3: yeah yeah
I: and then um hm hm okay….do you feel like that's too much time?
W3: hmm no when I have such kind of concern…I can be into the work, so I don't feel it's long

In Excerpt 10, the interviewer followed up on comments regarding the writer's concern about finding the most accurate words to express her intended meaning when composing an essay.

Excerpt 10: Word choice and emotion control

W3: As I said, I feel I have to, I must, find the best word to fit my feeling.
I: So, you just said "you must". What would happen if you didn't find it?
W3: I feel uncomfortable
I: So you would be unhappy.
W3: yes like when I drafting I try to find the best word and if I couldn't fit it I would feel uncomfortable when I reviewing. I often review. I often do reviewing when I write essay, so every time I review I feel uncomfortable and I get irritated so, for me, it's annoying.
I: yeah. What do you do about that?
W3: mmm. I just…you mean if I couldn't find the synonyms?
I: if you feel annoyed?
W3: I research again and try to find a synonym again
I: and then, do you ever just give up and decide it's too much trouble?
W3: mm if I couldn't find it, um, to the end, maybe I um, I will change the whole sentence. Maybe there is another way to express my feelings, my opinion correctly.

Lastly, Writer 3 seemed to prefer a more individualistic approach than Writer 1, whose use of social strategies was noted (Excerpts 1–4). When asked about visiting the writing center, she contended that, "the time I can spend at the writing center is too short to fix my problems" based on the 15-minute limit for reservations. Also, this writer gave a specific rationale for not wanting to engage in peer writing activities. Excerpt 11 is suggestive of the influence of the withdrawal aspect of neuroticism.

Excerpt 11: Rationalizing withdrawal

I: Do you ever talk to your classmates about your assignments?
W3: No, when it comes to assignments, I became too sensitive or too nervous so and we have to work on the assignment. Sometimes we have to work on the assignment with group and if my classmates know that I'm really nervous and sensitive about the assignment maybe they will think "waaa" [wow] it's hard to work with me
I: oh I see
W3: mm so I don't think it's good thing to talk with other students in my class. I think they know it.

Writer 3's consistently higher neuroticism seemed to influence her writing processes, including grammatical revisions (Excerpt 9), word searches (Excerpt 10), and preferring to write alone (Excerpt 11). Importantly, however, she viewed writing positively, saying during the interview: "in English or Japanese, I like writing. I feel like I can express myself by writing more than speaking."

10. Discussion

The purpose of Study 2 was to investigate SRC and personality longitudinally and to gather student writers' insights on their self-regulation. As suggested by CDST, changes occurred in each student's reporting of their SRC, as well as, surprisingly, conscientiousness and neuroticism. Notably, relationships between these variables, shown by the moving correlations (Verspoor et al., 2011) also exhibited dynamic shifts. Conscientiousness tended to support self-regulation in all three cases and neuroticism was generally in competition with SRC, but for Writers 1 and 3, these relationships were less stable than for Writer 2. In Writer 1's case, consistently high SRC scores make this result difficult to interpret (see Fig. 2a).

Considering Writer 3, interestingly, neuroticism may enter a supportive relationship with SRC (see Fig. 4b). We speculate that, in combination with a sufficient degree of conscientiousness, some writers experiencing volatility or withdrawal use it as an impetus to improve their composition skills or the writing environment. Writer 3's preferences for using extended time outside of a class or social group may reflect this possibility. That this led to strong performance is reminiscent of Han and Hiver's argument that negative and positive factors may yield "constructive configurations" (2018, p. 57).

The interview data further suggest ways that SRC plays out in the use of various writing strategies. These included repeatedly engaging with others to seek help composing or finding the right words (Writer 1) and envisioning a desirable future L2 self when writing (Writer 2). These and other strategies were used to cope with planning, drafting, and sustaining motivation. The findings here illustrate ways that these students apply self-regulatory strategies with regard to: (a) the overall process, (b) planning and fluency, (c) word choice, (d) topic difficulty, (e) motivation, (f) parental influence, (g) negative emotions, (h) engagement with others, and (i) withdrawal from others. It is recommended that writing instructors and advisors consider these findings, especially. As a major limitation of Study 2, we could not anticipate the level of attrition, nor what scores these writers would obtain at the beginning of the 15-week study. Clearly, these results from only three participants should not be taken as representative of other L2 writers. Regarding attrition, as Harklau (2008) noted, when the researcher-participants are also in a teacher-student relationship, as was the case here, participants may opt out for various reasons. Fortunately, the three writers above participated in all surveys and the follow-up interview. We thus feel confident to report their data, although a more diverse sample of writers would no doubt have been more informative.

11. Trait, state, and learner views

To summarize our main findings, in Study 1, based on a large sample, the CFA showed high factor loadings for the five SRC subscales used (commitment, satiation, emotion, metacognitive, and environmental control). SEM indicated a small, yet significant positive relationship between SRC and L2 writing in a large sample, with an R^2 of 0.05, indicating that self-regulation explained 5% of the variance in writing. These results should be regarded as unique to our model and sample. The model supported the hypothesis that conscientiousness positively correlates with SRC in L2 writing ($R^2 = 0.14$), while neuroticism negatively correlates with it ($R^2 = -0.10$). This finding, novel in L2 contexts, suggests that personality influences self-regulation.

In Study 2, three participants were studied over one semester. We found that all three variables—SRC, conscientiousness, and neuroticism—fluctuated somewhat. SRC did not seem to increase much over this time span, in line with previous findings (Nitta & Baba, 2015; Sasaki et al., 2018). Also, the relationships between the variables, studied using moving correlations, seemed fairly consistent because, typically, conscientiousness supported, and neuroticism competed with, SRC. However, the nature of these relationships varied from person to person. During follow-up interviews, these individuals viewed their ability to self-regulate in L2 writing positively, appearing to have crafted "good" strategies, i.e., approaches to the task of writing, and to ameliorating issues due to motivation and emotion, that fit their personalities.

These two studies afford the opportunity to consider whether their cross-sectional versus longitudinal findings are complementary. This was the focus of Research Question 4. The results converge in that SRC appeared to have trait-like qualities in both studies. Also, both studies uncovered relationships between SRC and personality. These studies diverge, however, in several other ways. The methodologies used represent distinct epistemological views on IDs (Riazi, 2016). They focused on different dimensions of self-regulation (i.e., structural relations versus temporal dynamics). Finally, their results are incompatible in a technical sense due to the ergodicity problem (Lowie & Verspoor, 2019). We invite readers to consider whether our attempt at a mixed methods approach represents an advance in research on L2 self-regulation.

The implications of this study are both theoretical and practical. Regarding theoretical implications, we aimed to explore the relationship between self-regulation, personality, and writing in terms of contrasting "traits in action" versus "processing dynamics" approaches. The structural model, put forth in Study 1, adopted a traits-in-action view by assuming that neuroticism and conscientiousness influence self-regulation, rather than the other way around. However, Study 2 leaves open the possibility that, as predicted by the processing dynamics view, it is self-regulatory processes that moderate the influence of personality. Another possibility is that both of these views may be correct. That is, the initial experience of writing in an L2 might reflect the directional influence of personality on self-regulation. Then, with time, L2 writers might come to recruit additional SRC that they acquire (through training or experience) to control any influences of their personality. Clearly, more research is necessary to untangle these possibilities.

Regarding pedagogical implications, L2 writing teachers and tutors may wish to consider the interview excerpts for insights. Here, we highlight a few relevant areas. First, IDs influence a writer's approach to the overall process, planning, and word choice (see Writer 1). Introducing self-regulatory techniques (Andrade & Evans, 2013) to manage such processes can be useful. Second, writing topics may conjure up emotions that are difficult and hard to anticipate (see Writer 2). Thus, it is important to pursue options such as

allowing students to choose their own topics, encouraging them to negotiate topics, and inviting them to select from a range of topic choices. Lastly, personality may be a contributing factor when students prefer individual versus social strategies (see Writer 3). Regarding LLS, therefore, it is helpful to teach and acknowledge a range of strategies in order to accommodate various writers.

There are noteworthy limitations to this study. These include its reliance on self-report measures. Future studies should seek to replicate the model reported in Study 1 with writing performance measures. Another major limitation is the low sample size in Study 2. Although attrition is common in longitudinal studies, we caution readers that these results are not generalizable. The three participants can be regarded as good writers. Without additional data, we cannot fully understand the dynamic relationship between self-regulation, personality, and L2 writing. Thus, one avenue for future research would be to examine these issues among writers of differing ability. Despite these drawbacks, we hope the present study's theoretical, methodological, and pedagogical implications keep discussions of self-regulation in L2 writing moving forward.

References

Andrade, M. S., & Evans, N. W. (2013). *Principles and practices for response in L2 writing: Developing self-regulated learners.* Routledge.

Bentler, P. M. (2005). *EQS 6 structural equations program manual.* Multivariate Software.

Brinkmann, S., & Kvale, S. (2014). *Interviews: Learning the craft of qualitative research interviewing* (3rd ed.). Sage.

Byrne, B. M. (2010). *Structural equation modeling with AMOS: Basic concepts, applications, and programing.* Routledge.

Chamorro-Premuzic, T., & Furnham, A. (2003). Personality predicts academic performance: Evidence from two longitudinal university samples. *Journal of Research in Personality, 37*(4), 319–338. https://doi.org/10.1016/S0092-6566(02)00578-0.

Csizér, K., & Tankó, G. (2017). English majors' self-regulatory control strategy use in academic writing and its relation to L2 motivation. *Applied Linguistics, 38*(3), 386–404. https://doi.org/10.1093/applin/amv033.

DeYoung, C. G. (2011). Intelligence and personality. In R. J. Sternberg, & S. B. Kaufman (Eds.). *The Cambridge handbook of intelligence* (pp. 711–737). Cambridge University Press.

DeYoung, C. G., Quilty, L. C., & Peterson, J. B. (2007). Between facets and domains: 10 aspects of the Big Five. *Journal of Personality and Social Psychology, 93*(5), 880–896. https://doi.org/10.1037/0022-3514.93.5.880.

Dörnyei, Z. (2001). *Motivational strategies in the language classroom.* Cambridge University Press.

Dörnyei, Z. (2005). *The psychology of the language learner: Individual differences in second language acquisition.* Lawrence Erlbaum Associates.

Dörnyei, Z. (2017). Conceptualizing L2 learner characteristics in a complex, dynamic world. In L. Ortega, & Z. Han (Eds.). *Complexity theory and language development: In celebration of Diane Larsen-Freeman* (pp. 79–96). John Benjamins.

Dörnyei, Z., & Ryan, S. (2015). *The psychology of the language learner revisited.* Routledge.

Ferris, D. R., & Hedgcock, J. S. (2005). *Teaching ESL composition: Purpose, process, and practice.* Lawrence Erlbaum.

Griffiths, C. (2019). Language learning strategies: Is the baby still in the bathwater? *Applied Linguistics, 0*(0), 1–6. https://doi.org/10.1093/applin/amy024.

Han, J., & Hiver, P. (2018). Genre-based L2 writing instruction and writing-specific psychological factors: The dynamics of change. *Journal of Second Language Writing, 40*, 44–59. https://doi.org/10.1016/j.jslw.2018.03.001.

Harklau, L. (2008). Developing qualitative longitudinal case studies of advanced language learners. In L. Ortega, & H. Byrnes (Eds.). *The longitudinal study of advanced L2 capacities* (pp. 23–35). Routledge.

Hu, L., & Bentler, P. M. (1999). Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Structural Equation Modeling: A Multidisciplinary Journal, 6*(1), 1–55. https://doi.org/10.1080/10705519909540118.

In'nami, Y., & Koizumi, R. (2011). Structural equation modeling in language testing and learning research: A review. *Language Assessment Quarterly, 8*(3), 250–276. https://doi.org/10.1080/15434303.2011.582203.

Jackson, D. O. (2018). Self-regulatory control and English writing proficiency among Japanese university students. *The Language Teacher, 42*(5), 3–7. https://doi.org/10.37546/JALTTLT42.5-1.

Kormos, J. (2012). The role of individual differences in L2 writing. *Journal of Second Language Writing, 21*, 390–403. https://doi.org/10.1016/j.jslw.2012.09.003.

Larsen-Freeman, D. (2017). Complexity theory: The lessons continue. In L. Ortega, & Z. Han (Eds.). *Complexity theory and language development: In celebration of Diane Larsen-Freeman* (pp. 11–50). John Benjamins.

Lowie, W. M., & Verspoor, M. H. (2019). Individual differences and the ergodicity problem. *Language Learning, 69*(S1), 184–206. https://doi.org/10.1111/lang.12324.

McAdams, D. P., & Pals, J. L. (2006). A new big five: Fundamental principles for an integrative science of personality. *American Psychologist, 61*(3), 204–271. https://doi.org/10.1037/0003-066X.61.3.204.

McCrae, R. R., & Costa, P. T. (2003). *Personality in adulthood: A five-factor theory perspective.* Guilford Press.

McCrae, R. R., & Löckenhoff, C. E. (2014). Self-regulation and the five-factor model of personality traits. In R. H. Hoyle (Ed.). *Handbook of personality and self-regulation* (pp. 145–168). Wiley.

Michel, M., Kormos, J., Brunfaut, T., & Ratajczak, M. (2019). The role of working memory in young second language learners' written performances. *Journal of Second Language Writing, 45*, 31–45. https://doi.org/10.1016/j.jslw.2019.03.002.

Morf, C. C., & Horvath, S. (2014). Self-regulation processes and their signatures: Dynamics of the self-system. In R. H. Hoyle (Ed.). *Handbook of personality and self-regulation* (pp. 117–144). Wiley.

Nitta, R., & Baba, K. (2015). Self-regulation in the evolution of the ideal L2 self: A complex dynamic systems approach to the L2 motivational self system. In Z. Dörnyei, P. D. MacIntyre, & A. Henry (Eds.). *Motivational dynamics in language learning* (pp. 367–396). Multilingual Matters.

Ortega, L. (2011). Reflections on the learning-to-write and writing-to-learn dimensions of L2 writing. In R. M. Manchón (Ed.). *Learning-to-write and writing-to-learn in an additional language* (pp. 237–250). John Benjamins.

Oxford, R. L. (1990). *Language learning strategies: What every teacher should know.* Heinle & Heinle.

Oxford, R. L. (2017). *Teaching and researching language learning strategies: Self-regulation in context.* Routledge.

Plonsky, L., & Oswald, F. L. (2014). How big is "big"? Interpreting effect sizes in L2 research. *Language Learning, 64*(4), 878–912. https://doi.org/10.1111/lang.12079.

Polio, C., & Friedman, D. A. (2017). *Understanding, evaluating, and conducting second language writing research.* Routledge.

Riazi, A. M. (2016). Innovative mixed-methods research: Moving beyond design technicalities to epistemological and methodological realizations. *Applied Linguistics, 37*(1), 33–49. https://doi.org/10.1093/applin/amv064.

Sasaki, M., & Hirose, K. (1996). Explanatory variables for EFL students' expository writing. *Language Learning, 46*(1), 137–168. https://doi.org/10.1111/j.1467-1770.1996.tb00643.x.

Sasaki, M., Mizumoto, A., & Murakami, A. (2018). Developmental trajectories in L2 writing strategy use: A self-regulation perspective. *The Modern Language Journal, 102*(2), 292–309. https://doi.org/10.1111/modl.12469.

Schoonen, R. (2015). Structural equation modeling in L2 research. In L. Plonsky (Ed.). *Advancing quantitative methods in second language research* (pp. 213–242). Routledge.

Schoonen, R., Snellings, P., Stevenson, M., & van Gelderen, A. (2009). Towards a blueprint of the foreign language writer: The linguistic and cognitive demands of foreign language writing. In R. M. Manchón (Ed.). *Learning, teaching, and researching writing in foreign language contexts* (pp. 77–101). Multilingual Matters.

Silva, T. (2016). An overview of the development of the infrastructure of second language writing studies. In R. M. Manchón, & P. K. Matsuda (Eds.). *Handbook of second and foreign language writing* (pp. 19–44). De Gruyter Mouton.

Teng, L. S., Sun, P. P., & Xu, L. (2018). Conceptualizing writing self-efficacy in English as a foreign language contexts: Scale validation through structural equation modeling. *TESOL Quarterly, 52*(4), 911–942. https://doi.org/10.1002/tesq.432.

Teng, L. S., & Zhang, L. J. (2016). A questionnaire-based validation of multidimensional models of self-regulated learning strategies. *The Modern Language Journal, 100*(3), 674–701. https://doi.org/10.1111/modl.12339.

Teng, L. S., & Zhang, L. J. (2020). Empowering learners in the second/foreign language classroom: Can self-regulated learning strategies-based writing instruction make a difference? *Journal of Second Language Writing*. https://doi.org/10.1016/j.jslw.2019.100701.

Tseng, W.-T., Dörnyei, Z., & Schmitt, N. (2006). A new approach to assessing strategic learning: The case of self-regulation in vocabulary acquisition. *Applied Linguistics, 27*(1), 78–102. https://doi.org/10.1093/applin/ami046.

Verspoor, M., & van Dijk, M. (2011). Visualizing interactions between variables. In M. H. Verspoor, K. de Bot, & W. Lowie (Eds.). *A dynamic approach to second language development: Methods and techniques* (pp. 85–98). John Benjamins.

Yin, R. K. (2015). *Case study research: Design and methods* (5th ed.). Sage.

Zimmerman, B. J. (2001). Theories of self-regulated learning and academic achievement: An overview and analysis. In B. J. Zimmerman, & D. H. Schunk (Eds.). *Self-regulated learning and academic achievement: Theoretical perspectives* (pp. 1–37). (2nd ed.). Routledge.

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