

Editorial:

Introduction to the special issue on L2 writing and feedback processing and use in pen and paper and digital environments: Advancing research and practice

1. Introduction

The present special issue (SI) is a collection of position papers and empirical studies intended to advance disciplinary conversations on the learning and teaching of second or foreign language (L2) writing in instructed second language acquisition (ISLA) contexts. It does so by analyzing critically past research, providing new empirical insights obtained in controlled and classroom-based studies conducted in various educational settings with diverse populations, suggesting worthy avenues to be pursued in future research agendas, and drawing implications for practice.

Several distinctive features of the SI are worth emphasizing. First, the contributions to the SI provide novel theoretical perspectives and empirical insights on L2 written texts, writing processes, and written corrective feedback processing and use. This focus on writing as well as feedback is relevant given key developments in ISLA-oriented L2 writing research. Thus, although initial formulations of the connection between L2 writing and L2 learning primarily conceptualized the language learning potential of the very act of writing (e.g., Cumming, 1990; Harklau, 2002; Manchón & Roca de Larios, 2008; see also Manchón & Williams, 2016; Williams, 2012), the study of the way in which engaging with feedback may advance language competences has more recently been added to research on feedback in L2 writing and, consequently, to ISLA-oriented L2 writing research agendas (e.g., Bitchener, 2019, 2021; Kang & Han, 2022; Leow, 2020; Roca de Larios & Coyle, 2022). The contributions to the SI hence add to these numerous past initiatives that have so far attempted to provide theoretical rationales

and empirical evidence for the predicted language learning affordances of the act of writing, on the one hand, and of the engagement with the feedback provided on one's own writing, on the other.

A second distinctive feature of the SI is its focus on both paper-based and screen-based writing. This is the logical result of acknowledging the gradual increase of the digital and multimodal nature of writing in a variety of learning and academic (as well as in workplace) environments (see reviews in Aubrey & Shintani, 2022; Çiftçi & Aslan, 2019; Elola & Oskoz, 2020; Godwin-Jones, 2018; see also Elola & Oskoz's contribution to this SI). It follows that generalizability of research insights on writing and feedback in instructed settings requires more nuanced understandings of the nature of L2 writing across writing environments. Additionally, to the best of our knowledge, this is the first collective volume that includes studies in which both writing environments are compared, as done in the theoretical contribution by Lee, and in the empirical studies by Vasylets et al., and González-Cruz et al.

2. Structure and contents

The SI is divided into two parts. The first part includes two review articles that discuss writing (by Lee) and feedback (by Elola & Oskoz) respectively. In both cases, the researchers synthesize and critically analyze research trends and findings, and subsequently draw implications for research and practice. These two theoretical papers set the scene for the six empirical studies that follow in the second part, which collectively address theoretically and pedagogically relevant questions related to writing itself in pen and paper and/or digital environments (Roca de Larios et al.; Vasylets et al.), and the provision and processing of feedback (Bowles & Castañaga; Criado et al.; González Cruz et al.; Leow et al.).

2.1. Theoretical papers

In the opening paper ("Developments in classroom-based research on L2 writing"), Icy Lee reviews and critically reflects on developments in classroom-based research on L2 writing on the basis of 75 studies published in the *Journal of Second Language Writing* between 2001 and 2020, which are grouped into 3 strands: (1) students and the learning of writing; (2) teachers and the teaching of writing; and (3) classroom assessment and feedback. Lee's analysis of the theoretical basis and methodological approaches in the classroom-based studies under review leads to the identification of key issues (i.e., corresponding theoretical foundations and appropriate methodological approaches) for future classroom-based L2 writing research agendas, and to the formulation of practical implications for

learning, teaching, and assessing writing. Of special relevance are her conclusions about pedagogical implications aimed at promoting digital writing in L2 classrooms, which include teachers' encouragement of online collaboration (both collaboration with peers "from other regions in digital spaces," p. 564), and teachers' actions to help students develop their multimodal resources as well as their digital interactional skills.

The second paper in the SI ("Reexamining feedback on L2 digital writing") by Idoia Elola and Ana Oskoz complements Lee's paper with its focus on digital multimodal composing and, more precisely, on feedback on multimodal texts (i.e., feedback being the third strand in the classroom-based research reviewed in Lee's contribution). Elola and Oskoz argue for a reconsideration of approaches to feedback in digital multimodal composing (DMC) environments, drawing attention to the imperative to expand the scope of feedback to target both the linguistic aspects and the non-linguistic elements of multimodal texts. The article not only identifies a gap in multimodal teaching and research regarding the role and focus on feedback in DMC, but also contributes an assessment rubric offered as a basis for formative feedback (which the researchers connect to assessment) that addresses linguistic and non-linguistic elements in students' multimodal texts. The article makes a case for the need "to move towards a more multifaceted, comprehensive, and modern feedback method" that takes into consideration multimodal issues related to identity, agency, and voice. As done by Lee in her contribution, Elola and Oskoz also provide suggestions for future research agendas on the role and impact of feedback, both in the development of multimodal texts and in the creation of multimodal tasks. The paper ultimately invites the field to reconsider and redefine prevalent notions of feedback in L2 writing.

2.2. Empirical contributions

The six empirical studies in the SI expand the lens through which L2 writing and feedback processing are inspected in the various populations and acquisitional contexts under study. We are concerned with research investigating L2 users of different ages and backgrounds (younger and older; students with and without a background in linguistics; L2, L3 – third language, and heritage users) in diverse educational settings (i.e., primary school, secondary school, and university) and educational programs (i.e., CLIL classrooms and L2 classrooms). This dual expansion of populations and contexts attends recent calls for needed developments in the field, which, it has been argued, will be severely limited "if target populations continue to be primarily university students with a background in language and linguistics. Similarly, studies with younger populations are still under-represented" (Manchón, 2023, p. 410).

The empirical part includes three classroom-based studies (one on writing, by Roca et al., and two on feedback, by González Cruz et al., and Leow et al.) and three laboratory-type studies (one on writing, by Vasylets et al. and two on feedback, by Bowles & Gastañaga, and Criado et al.). The next two sections provide additional details of these two groups of studies.

2.2.1. Advances in classroom-based research: Curriculum-oriented studies on learning to write in CLIL settings and learning from feedback processing

The SI issue attends calls for research to investigate writing and feedback processing and use as part of the instructional sequence, which in effect means adopting the longer-term, curricular perspective that several voices (e.g., Byrnes, 2020; Leow, 2020; Leow & Manchón, 2022; Manchón, 2020; Manchón & Leow, 2020) have strongly and convincingly advocated. Taken together, the three classroom-based studies cover diverse populations in terms of age (i.e., children, adolescents and young adults), in all cases in early stages of learning their L2.

Roca de Larios, Coyle and García contribute a novel study on children's L2 writing given its framing in systemic functional linguistics, genre pedagogy, and cognitive discourse functions, conceptual frameworks that have not previously been used in conjunction to elucidate L2 learners' literacy development. The study is also a relevant addition to previous studies on young learners' writing because, as the authors explain, "the relationship between instruction, subject knowledge and L2 writing continues to be overlooked in CLIL primary school contexts" (p. 599), hence "the need to address CLIL science teaching from a literacy-oriented perspective" (p. 599). To this end, the researchers designed and implemented a teaching sequence (delivered by one of the authors, the classroom teacher) on the curricular topic of levers with forty-eight 9-10-year-olds over three weeks in a CLIL science class. The main aim of the study was to explore the effects of the instructional scaffolding of children's writing as evidenced in the analysis of the functional and linguistic features of the reports written by the children throughout the instructional sequence. In the authors' view, their study provides "novel evidence to suggest that writing instruction combining attention to genre and disciplinary language by means of cognitive discourse functions can scaffold children's integration of language, content and literacy knowledge in a CLIL context" (p. 615).

The two additional classroom-based studies in the SI are longitudinal studies that targeted feedback, in one case in digital writing conditions (Leow et al.), and in the other case comparing digital and pen and paper writing (González-Cruz et al.). The populations in these studies were beginner secondary school students of L2 English (González-Cruz et al.), and beginner, university students of L2 Spanish (Leow et al.).

Adding to the instructional sequence reported in Roca de Larios et al.'s contribution, González-Cruz et al.'s study reports a pedagogical treatment with 32 low proficiency secondary school students in two authentic EFL classrooms (one of them taught by one of the researchers). The participants wrote two descriptive texts collaboratively either on the computer or on paper, received in-class training in the identification and correction of errors, were subsequently provided with error correction, and finally invited to rewrite their original texts on the basis of their engagement with the feedback received. Although the researchers did not find an effect of the writing environment on the participants' feedback processing (operationalized as noticing of the corrections provided in the feedback received), the data distinctively pointed to an advantage of the digital condition for increased grammatical and lexical accuracy. The researchers were nevertheless careful to note that evidence of fewer grammatical or lexical errors in the texts written by the participants with access to the Internet in the digital condition should not be equated with evidence of "learning." They therefore suggest investigating further the language learning affordances of digital writing. Based on their partially unexpected feedback processing results, the researchers additionally make methodological suggestions for future research related to the use of "concurrent data such as audio or video recordings to capture the interaction taking place in collaborative dialogues while writing and processing WCF and thus better understand the motivations behind some decisions taken by the learners as well as the actual products resulting from those decisions" (p. 638).

Think-aloud data was precisely the methodological procedure used in the third classroom-based study in the SI: Leow et al.'s process- and curriculum-oriented, quasi-experimental study exploring direct and metalinguistic feedback processing (and effects on morphological and syntactic errors) by ten adult beginner L2 writers. The participants wrote three compositions on the computer in the natural writing conditions of a foreign language curriculum (taught by one of the researchers) while thinking aloud, and were subsequently provided with feedback that targeted one morphological and one syntactic linguistic item in Spanish (the participants' L2). The think aloud-data were transcribed, coded for depth of processing (DoP), and correlated with subsequent performances on the target items. It was found that DoP varied as a function of feedback type (with metalinguistic feedback unsurprisingly resulting in higher DoP), and the nature of the linguistic item targeted in the feedback. DoP did not vary over time, and, importantly, DoP positively influenced subsequent performance on tests and rewritten compositions. The authors finish with recommendations for future research, crucially drawing attention to "the importance of acknowledging variables within the instructed setting that may impact a pure effect of WCF on L2 development" (p. 652), which poses key empirical problems, with crucial methodological implications for future work. In the authors' own words:

the methodological or ecological question may be whether we attempt to tease out the role of WCF . . . , or simply acknowledge the authentic classroom setting, together with several other variables (e.g., individual differences, curricular differences, etc.) that potentially may impact the pure effect of WCF on subsequent L2 development. (p. 666)

2.2.2. Advances in research agendas on the role of IDs in writing, the nature of writing processes, and role of language background in feedback processing and use

The rest of the contributions to the SI address additional relevant pending empirical questions, or additional dimensions of the questions addressed in some of the classroom-based studies. Thus, Bowles and Gastañaga investigated feedback processing (as done in Leow et al.'s study), their ultimate aim being to shed light on whether language background (second language, third language, and heritage language users in the study) mediates how L2 writers engage with the feedback provided on their writing. Criado et al. investigated fluency in the writing produced by children (a population hardly featured in previous studies of writing processes) in an attempt to answer pending questions as to whether, as originally predicted by Truscott (1996, 2004), engagement with feedback negatively influences writing fluency. Finally, Vasylets et al. investigated whether the purported (and partially attested) effects of cognitive individual differences (IDs) on text characteristics is moderated by the environment of writing (i.e., whether potential IDs effects vary in pen and paper versus digital writing).

Along the lines of the procedure followed in Leow et al.'s study, Bowles and Gastañaga used think-aloud data to compare DoP of processing of three different types of WCF (direct, coding, or underlining) by heritage, second, and third language (Spanish) users, who wrote three essays on the computer, were subsequently provided with feedback, and finally revised their original texts. The researchers investigated whether DoP was mediated by feedback type, error type, and language background. The findings coincide with those in Leow et al.'s study in showing the moderating role of feedback type and linguistic item in how deeply participants processed feedback. The third predictor variable in their study, language background, was also found to interact with DoP. These findings led the researchers to ascertain their relevance for potential "evidence-based pedagogical decisions" when teaching writing to language users with diverse language backgrounds.

Criado et al. examined writing fluency in the digital texts written by eighteen 10-11-year-old L2 English children. All the children wrote their texts and were subsequently divided into two groups: one group compared their initial texts with a model text, and the other group engaged in self editing. Both groups

were then asked to rewrite their original texts. Fluency of the original and re-written texts (recorded via Inputlog 8.0) was analyzed via five product/offline and five process/online measures. The results partially support Truscott's claims because, although the feedback group improved their fluency in all the ten measures, the self-editing group showed higher fluency than the feedback group in seven of the ten measures. The study is relevant not only for the light shed on writing fluency with data on an underrepresented population, but also for the methodological contribution it may make to future fluency studies. In this sense, the authors argue for the adoption of "a multidimensional approach to understand the complex and multi-faceted nature of fluency" in writing.

Vasylets et al.'s study is a notable addition to the growing research interest on the role of IDs in writing, as attested by recent overviews of this research (Ahmadian & Vasylets, 2022; Papi et al., 2022) and the forthcoming publication of a SI on the topic (Manchón & Sanz, 2023). Their intended contribution to the extant research in this strand was to shed light on whether aptitude and working memory effects on text characteristics are moderated by writing environments, a predictor variable that has not been part of previous work on IDs and writing, although the relevance of this research focus can be theoretically motivated, as Vasylets et al. convincingly argue in the framing of their paper in the relevant literature (see also Kormos, 2023). They invited 42 Spanish learners of L2 English to perform a problem-solving task either digitally or on paper. The participants' working memory was assessed via an n-back test, and their language aptitude via the LLAMA tests. Their texts were analyzed in terms of complexity, accuracy and fluency (CAF) measures. Findings pointed to a differential effect of cognitive individual differences in L2 writing as a function of the writing environment (paper vs. digital). The authors explain this moderating effect on account of differences in paper-based and screen-based writing, especially in terms of "the haptic-kinesthetic experiences (richer experiences on paper versus less embodied and detached in digital writing), visual text presentation (stable and tangible on paper versus shifting and dynamic on the screen), as well as the way writing processes are implemented (easy revision/editing on the computer versus complicated revision/editing on paper)" (p. 736). Given the exploratory nature of their investigation, the researchers call for more controlled experiments that can shed further light on "the mechanisms which account for the variability in the effects of cognitive resources in different environments of L2 writing" (p. 736).

3. Conclusion

Collectively, this SI offers new insights into the vibrant and continuously evolving domain of L2 writing and WCF. The two opening papers lead up to the following

empirical studies by first looking back at key issues and themes that have concerned researchers over the last two decades before looking to the future and exciting new developments taking place in digital L2 writing and feedback. The expansion of the field is then clearly embodied in the broad analytical lens adopted by the empirical contributions to the SI, all of which reflect the diverse and multifaceted nature of ongoing research in a number of areas. Among the insights offered in this SI, special mention should be made of the examination of L2 writing and WCF processing as part of language-learning and content-learning curricula in elementary, secondary and higher education contexts. The findings obtained from these interventional studies in authentic classrooms, whether addressing the acquisition of specific grammatical structures and lexis, conceptual content, or the affordances of different feedback techniques, are valuable not only for their ecological validity, but also for the interest they hold for pedagogy in FL and CLIL contexts. Equally relevant is the focus on the role of cognitive differences in L2 writing, a clear reminder that within every learning community there are individuals with differing aptitudes and skills, whose reactions to writing tasks and modalities will necessarily impact their L2 writing performance. Drawing our attention to how these variables might affect print and screen-based writing makes an insightful contribution to an area that is still very much work in progress. Methodologically too, the SI advances our knowledge of concurrent data collection procedures, whether through introspective think-aloud protocols or external keystroke logging data, and their capacity to shed light on different dimensions of learners' thinking and L2 writing competence. Taken together, the SI offers a comprehensive collection of state-of-the-art papers on L2 writing and WCF. The focus on writers of different ages, proficiency levels and language backgrounds in both pen and paper and digital environments showcases ongoing scholarship in a complex and multidimensional area of inquiry. In short, it is hoped that the theory and research reported in the SI contributes to advancing current understandings of writing and feedback in classroom settings from empirical and applied perspectives.

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