

Written corrective feedback and the language curriculum: Theory, research, curricular issues, and the researcher-teacher interface

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Abstract

Feedback plays an important role in the L2 learning process, as evidenced by several meta-analyses on both oral (e.g., Li, 2010) and written (e.g., Kang & Han, 2015) corrective feedback. In the written corrective feedback (WCF) strand, when viewed from a *writing-to-learn* perspective (Manchón, 2011), there has been a recent two-pronged critique that addresses 1) the general product-oriented approach and 2) the failure to situate research designs within the authentic instructed SLA or ISLA setting (Leow, 2020) that, in turn, is situated within a language curriculum (e.g., Leow, 2019a). The call for a theoretically-driven ISLA and curricular approach to the WCF strand of research is quite logical given that WCF not only takes place in the instructed setting but is crucially aligned with the writing component of the curriculum. This curricular approach also holds the potential for research in WCF to address the researcher-teacher interface that continues to reveal a gap between ISLA researchers and classroom teachers. To this end, this article probes deeper into the curricular approach to WCF research by 1) first reporting on the two theoretical underpinnings that directly address the WCF process, 2) addressing the potential conflation of the two types of writing curricula in language departments, 3) discussing considerations required of a curricular approach to WCF research, 4) providing an example of a process-oriented ISLA *applied* study that falls within a curricular approach to WCF research, and 5) addressing the gap of the researcher-teacher interface including collaborative steps taken to involve teachers in WCF studies.

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Introduction

For decades the role of corrective feedback (CF) in the second/foreign language (L2) learning process has permeated the (instructed) second language acquisition or (I)SLA literature, as evidenced by the hundreds of publications on some aspect(s) of CF. Several meta-analyses conducted to investigate its pedagogical effectiveness (e.g.,

Mackey & Goo, 2007; Kang & Han, 2015; Russell & Spada, 2006) have generally reported an overall medium effect size for its positive contribution to L2 learning. Indeed, within the written corrective feedback (WCF) strand, despite the early debates between Truscott (1999, 2004) and other researchers (e.g., Chandler, 2003; Ferris, 1999), the role of WCF in L2 learning is not controversial. Most WCF research, then, is typically based mainly on the effects of which type of WCF and how much WCF is superior in promoting learning, irrespective of modality (paper-and-pen and digital) or writing condition (individual and collaborative). Two major types of WCF are direct WCF, which provides the correct form, and indirect WCF, which provides a flag that an error has been committed, does not provide the correction but in some cases, some metalinguistic information on the type of error committed. Not surprisingly, empirically addressing the effectiveness of type and amount or scope of WCF has led to a more experimental and laboratory-based research design as researchers seek to control many variables in order to evaluate their respective effectiveness on L2 development or learning, including the presence of a control group that receives no feedback. At the same time, the construct of learning or development in WCF studies has been operationalized and measured in many different ways.

The typical approach to investigate the role of WCF still appears to be product-oriented given that data gathered after exposure to the feedback are used to make assumptions on what role WCF played in the learning process during the experimental concurrent phase of the study. For example, proponents of direct WCF (e.g., Chandler, 2003; Ellis et al., 2008; Sheen, 2007; Van Beuningen, 2010) assume that this type of feedback provides immediate linguistic data to L2 writers to confirm or disconfirm their original hypotheses of the L2 and view its absence as a potential block to the learning process. Proponents of the provision of indirect feedback (e.g., Ashwell, 2000; Bitchener & Knoch, 2008; Ferris & Roberts, 2001; Lalande, 1982) view this type of WCF as promoting deeper learner engagement that leads to better retention.

Amount of WCF is typically framed as focused, that is, only a very limited number of targeted items are selected for feedback versus unfocused, that is, all errors are flagged. Proponents of focused WCF (e.g., Ellis et al., 2008; Sheen, 2007) claim its effectiveness in drawing L2 writers' undivided noticing (à la Schmidt, 1990, 2001 and elsewhere), thereby leading to an understanding of the source of the committed error. Focused feedback is also coupled with an acknowledgement of the assumed limited cognitive capacity of L2 writers. Proponents of unfocused WCF (e.g., Bruton, 2009; Storch, 2010) critique the use of focused WCF mostly from an ecological validity perspective that underscores the lack of alignment with what takes place or how compositions are graded in the writing component of a language curriculum in the instructed setting.

On the other hand, a process-oriented approach to WCF research seeks to tap into the cognitive processes employed by L2 writers in an effort to understand the process of learning under feedback processing conditions. Early attempts to employ a process-

oriented approach has been around for some time. For example, Storch and Wigglesworth (2010) audio-recorded the collaborative writing of L2 writers in pairs but approached this collaboration more from a sociocultural perspective than a cognitive one. However, there has been a recent uptick of researchers who, situating their studies within Leow's (2015) Model of the L2 Learning Process in ISLA, began employing concurrent data elicitation procedures (e.g., think aloud protocols) to tap into the depth of processing (DoP) and levels of awareness evidenced by L2 writers as they interacted with the feedback they received (e.g., Adrada-Rafael & Filgueras-Gómez, 2019; Caras, 2019; McBride & Manchón, 2023; Park & Kim, 2019; Leow et al., 2022b). This shift in focus on the process versus the product of WCF studies was also accompanied by calls to adopt an ISLA perspective as opposed to an SLA one, that is, to situate the research design within the instructed setting (Leow, 2020; Leow & Manchón, 2022a; Manchón & Leow, 2020), namely, within the syllabus and language curriculum. This approach to ISLA research falls within one of the two sub-strands of ISLA research recently identified: 1) ISLA *applied* studies that aim to provide pedagogical ramifications to the instructed setting by situating their designs within the authentic classroom setting and 2) *applied* ISLA studies that do not carry such pedagogical implications and are typically laboratory-based studies (see Leow, 2019a for further discussion).

To promote theoretically-driven and ecologically-valid WCF research closely aligned with the instructed setting, this article probes deeper into the curricular approach to WCF research by 1) first, reporting on the two theoretical underpinnings that directly address the process of learning within a feedback processing condition, 2) addressing the potential conflation of the two types of writing curricula currently existing in language departments, 3) discussing considerations required of a curricular approach to WCF research, namely, situating the research design within the instructed setting to gather authentic WCF data and revisiting previous WCF studies with a focus on a) the construct of learning and b) the measurement of learning in an effort to bridge the gap between research and curriculum, 4) providing an exemplar of a process-oriented ISLA *applied* study that falls within a curricular approach to WCF research, and 5) addressing the link between WCF researchers and the language curriculum with its potential for narrowing the gap of the researcher-teacher interface.

Theoretical Underpinnings of WCF

To address the effectiveness of WCF on L2 writers' subsequent learning, it is important that studies are theoretically-driven in an effort to explicate how the role of WCF processing contributed to such improvement. In previous reports, Leow and his colleagues (Leow, 2020; Leow & Driver, 2021; Leow & Suh, 2022c) have critiqued the several theoretical underpinnings that have been cited in the WCF strand of research to account for the role of WCF in L2 learning, for example, Schmidt's (1990, 2001 and elsewhere) Noticing Hypothesis, Swain's (1985, 2005) Output Hypothesis, Long and Robinson's (1998) Focus-on-Form, and DeKeyser's (2015) Skill Acquisition Theory. A careful review of the major tenets of these theoretical underpinnings, with the

exception of the Output Hypothesis, reveals that the role of feedback, whether oral or written, is not theoretically accounted for in their postulations. Among the three claims of the Output Hypothesis is the hypothesis-testing function, which may appeal more to L2 learners who produce the L2 and use potential feedback to verify their L2 accuracy. According to Swain, such conscious processing of the feedback may then lead to “reprocessing” their output. Feedback, then, offers highly motivated L2 writers the opportunity to consciously restructure their prior knowledge. The Output Hypothesis, however, does not postulate how the feedback is further processed; for example, is noticing the feedback sufficient to restructure the interlanguage?

In the ISLA literature, there are two recent theoretical underpinnings (Bitchener, 2019, 2021; Leow, 2020) that attempt to capture cognitively the role of WCF in L2 learning during exposure to this type of corrective feedback.

Bitchener’s (2019, 2021) Framework of Cognitive Stages for a Single Written CF Episode

Bitchener’s (2019, 2021) framework includes some tenets of several previous theoretical underpinnings, for example, Schmidt’s (1990, 2001 and elsewhere) Noticing Hypothesis and Tomlin and Villa’s (1994) Model of Input Processing in SLA but closely follows the various stages of the L2 learning process postulated by Gass’s (1988, 1997 and elsewhere) Model of Second Language Acquisition for his postulated roles of cognitive processes during the different stages of processing WCF. These stages are 1) attending to the WCF, 2) noticing the gap between the L2 writers’ output and the WCF provided, 3) understanding the WCF, 4) analyzing or comparing the WCF in relation to the L2 writers’ existing knowledge, and 5) forming an hypothesis and testing it. Each stage is associated with additional moderating variables that can potentially play a role in feedback processing.

Bitchener first postulates, before the provision of WCF, a precondition stage for L2 writers that describes their readiness to engage in successful WCF processing. He adopts from Tomlin and Villa’s (1994) model their notions of “alertness” to support his claim of motivation and “orientation” to support the need for L2 writers to orient their attention to form or accuracy before the WCF is provided. At the preliminary stage of attending to WCF, Bitchener postulates that there may be a role for preference for type of feedback, language proficiency, and prior experiences with previous WCF. Following Schmidt’s Noticing Hypothesis to account for the noticing (attention plus a low level of awareness) the gap between L2 writers’ output and the WCF provided, Bitchener claims that salience and linguistic marking of different types of WCF may need to be considered. At the understanding of the WCF stage, he postulates that levels of information, type of linguistic item (e.g., complexity of targeted linguistic item), and long-term memory may moderate feedback processing. At the stage of analysing or comparing the WCF in relation to the L2 writers’ existing knowledge, feedback processing may be moderated by variables such as working memory processing capacity, long-term memory store, language learning aptitude, and type of

WCF. Finally, at the hypothesis formation and testing stage, affective factors and prior experiences may play a role. Successful completion of these stages then leads to the acceptance of the hypothesis, which in turn leads to consolidation. If the hypothesis is not accepted, this will lead to a repetition of the episode. Bitchener's framework needs to be empirically supported.

Leow's (2020) Feedback Processing Framework

Leow's (2020) framework is premised on his 2015 Model of the L2 Learning Process in ISLA that also includes some of the tenets of previous theoretical underpinnings, namely, Schmidt's (1990, 2001 and elsewhere) Noticing Hypothesis, Tomlin and Villa's (1994) Model of Input Processing in SLA, Robinson's (1994) Model of the Relationship Between Attention and Memory, and Gass's (1988, 1997 and elsewhere) Model of Second Language Acquisition. More specifically, the framework is situated at the model's third and final knowledge processing stage that takes place between the L2 developing system and learner output. Like Swain's (1985, 2005) Output Hypothesis, this knowledge processing stage is also postulated to be part of the L2 learning process given that learners' output may elicit potential feedback. This feedback may then serve as additional input, in addition to learners' personal monitoring of their output, that can be processed to confirm or disconfirm their L2 output or prior knowledge. Depending upon depth of processing or level of awareness, they may reinforce their present knowledge or restructure their current interlanguage.

Leow (2020) elaborates this potential feedback aspect of his Model by providing his Feedback Processing Framework that offers "a cognitive explanation for the role of corrective feedback, whether oral or written, in L2 development in direct relation to how L2 learners or writers process such feedback" (p. 105). In this framework, as reported in Leow (2020), *Feedback* is the L2 input or information that L2 learners need to process. *Feedback processing* describes feedback processing (if at all) by L2 learners, which is related to their prior knowledge. The information in the corrective feedback, if further processed, may lead to a restructuring of L2 learners' inaccurate interlanguage currently stored in their *Internal System* (L2 developing system). This new restructured information, which may still be inaccurate, may either replace or co-exist with the original knowledge. "There is, then, the possibility that the learner still retains the previous inaccurate L2 data and now holds both (accurate and inaccurate) options in the system." (Leow, 2020, pp. 104-105). The presence of *Old Output*, representing a repetition of the error after exposure to the corrective feedback, may be indicative of L2 learners failing to process or perhaps only at a low depth of processing the feedback provided. It may also indicate that the L2 learners may not have much confidence in (or understanding of) the feedback provided. The presence of *New/Modified Output* represents L2 learners' restructured or current L2 knowledge residing in their *Internal System*. At this point, L2 learners' current knowledge may represent two types of learning. One is item learning, that is, the corrective feedback was internalized as a chunk of language as in learners copying or repeating direct corrective feedback without much understanding of the error source. The other may

be system learning, that is, learners invested more cognitive effort or higher DoP and achieved awareness at the level of understanding, that is, they understood the linguistic source of their error. However, it is challenging at the immediate post-exposure stage of receiving corrective feedback to truly gauge whether system learning or a complete accurate restructuring did take place and not a temporary restructuring (item learning). Consequently, only data observed at a later stage can support or refute this type of system learning or successful retention of the corrective feedback. In other words, caution is required assuming that accurate performance evidenced immediately after the corrective feedback was provided reflects true successful restructuring. It is well documented in the ISLA literature that several studies (e.g., Bistline-Bonilla et al., 2019; Moreno, 2019) reported on their delayed posttests a significant decrease in performance at this stage. Such a significant decrease would indicate that learners did not process the corrective feedback deeply enough to retain the linguistic information and reverted back to their previous inaccurate interlanguage.

Leow adds that there are several cognitive processes (e.g., metacognition, activation of prior knowledge, hypothesis testing, rule formulation, etc.) that may moderate whether the corrective feedback is indeed processed by L2 learners and at what level of awareness or depth of processing. Leow's (2015) model has already been empirically tested (see Leow, 2019b for over a dozen and a half recent studies on the role of depth of processing) while his framework has been supported by a recent published study (Leow et al., 2022b) with respect to the role of DoP and his postulation regarding immediate post-exposure performances. Further investigation into his postulations on feedback processing and processes is also warranted.

The Writing Curriculum vs. the Language Curriculum

It is important to consider the type of curriculum within which most WCF studies are situated at the college-level. The *writing* curriculum in language departments is typically found in the third year of many minor/major language tracks and premised on students' level of language proficiency. The main purpose of these writing courses is to provide guidance to language students to improve their ability to write different types of written genres (e.g., expository, argumentative, descriptive, narrative etc.), hence the concept of *learning-to-write*. While the learning outcomes of such writing courses are heavily weighed on the genre aspect of the courses, grammatical accuracy, content, structure, and vocabulary are usually included in the assessment rubric.

The *language* curriculum, on the other hand, is more expansive in learning outcomes and the writing component comprises only one of usually four components that also include listening, speaking, and reading. The writing component is generally designed to allow L2 writers to practice in writing (compositions) what they have recently covered on the syllabus or in recent chapters in the textbook with respect to grammar, vocabulary, and content. Assessment of writing may be componential covering different aspects of the composition such as structure, vocabulary, grammar, content

etc. with different weights or percentage scores assigned to each aspect. However, vocabulary, grammar, and content are usually more heavily weighted. Unlike the writing course, writing is only performed periodically across the semester, WCF is typically provided after a period of time, and the number and length of compositions may vary. It is within this language curriculum that the concept of *writing-to-learn*, as opposed to *learning-to-write*, appears more appropriate.

What separate writing curricula from language curricula, then, are language proficiency, the relatively different amount of time spent in this written modality during the course, and the overall weight assigned to writing. Given these differences, conflation of these two types of curricula and student population should be avoided in WCF research (Leow, 2020) if curricular issues, for example, writing measures (see below), are considered.

Interestingly, the potential of *writing-to-learn* (e.g., Harklau, 2002; Manchón, 2009, 2011) during the initial stage of composing was conceived several decades ago based on think aloud data that revealed L2 writers' cognitive engagement during this writing phase (e.g., Cumming, 1990; Swain & Lapkin, 1995). This *writing-to-learn* perspective has gained much attention over the last decade or so with Manchón and Vasylets (2019) recently underscoring the need for "research interest in ascertaining how and why such rich linguistic processing may be beneficial in terms of language development" (p. 342). As noted by Leow (2020), "*Writing-to-learn* associated with potential L2 learning is refocusing the role of written corrective feedback (WCF) in current ISLA research, a refocus that logically lends some ecological validity to research attempting to address the role of WCF in the instructed setting." (p. 97). If one were to seriously consider the references to "ecological validity" and "instructed setting" in this statement, then there may be need to consider the important link between WCF research subsumed within the *writing-to-learn* concept and the language curriculum.

A Curricular Approach to WCF Research

If it is acknowledged that WCF belongs to ISLA (the instructed setting), which is situated within a language curriculum, then a curricular approach to WCF, viewed from a *writing-to-learn* perspective, may require two important considerations. First, there is the need to situate WCF studies within the context in which WCF does occur, that is, the instructed setting (Leow, 2020; Leow & Manchón, 2022a; Manchón & Leow, 2020; Manchón & Vasylets, 2019). This situation will allow the gathering of authentic data (versus data obtained in a laboratory-based setting) from the L2 writer, both online and offline, within a given syllabus and over a period of time to simulate the language curriculum (e.g., Leow et al., 2022b). Second, there is the need to operationalize the construct of learning based on curricular writing measures. These considerations fall within ISLA *applied* studies (Leow, 2019a) that are designed to provide pedagogical ramifications to the instructed setting. Leow has argued that, from a curricular perspective, statistically significant and large effect sizes are not

more important than robust findings that are related to a passing grade or successful learning in any language curriculum. For example, after receiving some type of WCF, participants improved from pretest means of 5/100 to posttest means of 20/100. While statistical at $p = .001$ with a large effect size of 2.3, these findings cannot be extrapolated to the instructed setting given that the final means or performances do not align with the learning outcomes or passing grade of the language curriculum.

Situating WCF Research within the Instructed Setting

As reported above, the majority of WCF studies have been conducted from an *applied* ISLA (laboratory-based) perspective in addition to a product-oriented approach, that is, data are gathered offline and assumptions made regarding how the WCF is processed by the L2 writer. Several researchers (e.g., Leow, 2020; Leow & Manchón, 2022; Leow et al., 2022b; Manchón & Leow, 2020) have called for a more process-oriented ISLA *applied* approach to address the cognitive processes employed as L2 writers engage with WCF in an effort not only to understand better such processes but also to make pedagogical ramifications to the writing component of a language curriculum. In addition, the authenticity of the data gathered in the instructed setting (versus within a laboratory-based setting) from the L2 writer, both online and offline, within a given syllabus and over a period of time to simulate the language curriculum is of paramount importance from an ISLA *applied* perspective (e.g., Leow et al., 2022b). To date, there have been several WCF studies that have done so (e.g., Amelohina et al., 2020; Caras, 2019; Coyle et al., 2018; Leow et al., 2022b) but it is clearly a worthwhile avenue for future investigation.

Operationalizing the Construct of Learning Based on Curricular Writing Measures

A quick review of WCF studies reveals quite a range of operationalizations and measures of the construct of learning. Learning has been, for example, operationalized as writing performance (Aghajanloo et al., 2016), linguistic accuracy (e.g., Deng et al., 2022), written or writing accuracy (van Beuningen et al., 2012), writing development (Truscott & Hsu, 2008), increased accuracy (Shintani et al., 2014), formal accuracy (Ashwell, 2000), improvement in language production (Carr & Wicking, 2022), and so on. Measures include normalized error counts obtained by dividing the number of errors by the number of words in the writing sample and then multiplying it by a standard number representing the average number of words of all writing samples (Deng et al., 2022), T-units (e.g., Santos et al., 2010), accuracy scores (Caras, 2019) where the accuracy score calculation was made by taking the total number of instances of correct and incorrect usage of each and dividing it by the total number of instances where each target was correctly or incorrectly used, weighted clause ratio (WCR) (Barrot, 2021) that classifies accuracy into four severity levels: entirely accurate, level 1 error, level 2 error, and level 3 error, instances in which a participant identified an instance of learning that can be described in terms of language form, meaning or usage (e.g., learning the new form of a word or appropriate preposition that accompanies a

lexeme) (Carr & Wicking, 2022), syntactic complexity, accuracy, and fluency (CAF) (Khezrlou, 2020), reduction of errors (Kloss & Quintanilla, 2022), and so on.

As can be observed, there is quite a level of inconsistency pertaining to not only what comprises learning derived from the provision of WCF but also how this construct is operationalized and measured. From both a pedagogical and curricular perspective, it is quite challenging to know what linguistic information L2 writers actually learned after WCF exposure. Results are global without much information given that specific grammatical items are typically not specified but lumped into an overall report of several aspects of grammatical knowledge or global accuracy rate (Bruton, 2009). While such a broad operationalization and measurement of the construct of learning may be pertinent to the upper level writing curriculum, what specifically did L2 writers learn from the exposure to WCF at the lower language curriculum remains overall nebulous to both ISLA researchers and teachers.

With regard to measures employed to address the effectiveness of WCF in these studies, it is clear that many of them may not have any relationship with the grading criteria used in language curricula. To this end, if WCF researchers want to situate their research designs within the language curriculum, then perhaps it may be more ecologically valid to address the features assessed in the writing component of the language curriculum unless an improved measure is part of the research design. For example, the measurement of the effect of WCF in the lower-level language curriculum should align more with lexical and linguistic accuracy. However, in the upper-level writing curriculum, it may be more appropriate to employ the more global measures (e.g., total number of errors, reduction of errors etc.) and measures that, in addition to accuracy, probe deeper into features pertaining to the skill of writing such as syntactic and lexical complexity and fluency (e.g., CALF), with the caveat that improvement in features such as lexical complexity and fluency requires a lot of practice over time. The importance of using measures aligned with curricular standards is premised on the ISLA *applied* approach to classroom-based research that seeks a closer connection to the targeted curriculum.

The following section reports on an example of a process-oriented ISLA *applied* WCF study that not only gathered authentic data from the L2 writers, both online and offline, within a given syllabus and over a period of time to simulate the language curriculum but can also assist in bridging the gap between research, teachers, and the curriculum.

Authentic Classroom Data and Bridging the Gap between WCF Research, Teachers and the Language Curriculum

WCF researchers interested in employing a research design that fulfills the two considerations required of a curricular approach to WCF research may find Leow et al.'s (2022b) study based on Leow and Manchón's (2022a) exemplar of an ISLA *applied* research design. Theoretically, this empirical study is situated within Leow's

(2020) Feedback Processing Framework and employs a process-oriented ISLA *applied* approach to address the cognitive processes employed by 10 Beginning college-level students of Spanish without any prior knowledge of the L2, the effectiveness of type of WCF (direct vs. metalinguistic), and type of linguistic items (morphological vs. syntactic) on their subsequent performances on two targeted problematic linguistic items. These two items were naturally included within two Tests scheduled and administered during the semester and the Final Exam. The research design was embedded within an authentic instructed setting with a syllabus that was situated in a communicative-based language curriculum. The writing component of the curriculum incorporates four compositions (approximately 300-350 words) that are based on the content, vocabulary, and linguistic structures of the textbook chapters during the semester. Composition topics were selected and carefully designed prompts were developed for each topic that elicited a satisfactory amount of target linguistic items (e.g., noun/adjective agreement and the *gustar* 'to like' structure in Spanish) covered in the previous chapters within each composition (see Appendix A for Composition 1). Subsequent topics, in addition to newly covered grammatical and lexical items, incorporated some of these previous prompts to address the issue of learning or L2 development (see Appendix B for Composition 2).

Participants followed the typical assignment of typing their compositions on a Word document at home at their own pace. In order to gather concurrent data on how L2 writers process during written production at the initial composing stage and WCF at the revision stage, they were asked, after practicing thinking aloud, to record their thoughts aloud and upload the protocols to a server. The original compositions received unfocused WCF via the componential grading criteria rubric employed in the curriculum to provide feedback on writing mechanics (5%), structure (10%), vocabulary (25%), content (30%), and grammar (30%) and were then returned to the participants for rewriting (revision). The prompts comprised the "focused" WCF used to address potential learning in relation to the grammatical learning outcomes specified in the language curriculum and were scored one point or zero for noun/adjective agreement and one point or partial (.5 for partial structure) for the *gustar* structure. The order of type of WCF was alternated for the four compositions during the semester to address a within-subject analysis for type of feedback. The usual unfocused WCF comprised only direct and metalinguistic feedback (accompanied by a sheet with metalinguistic information) given the low language proficiency of the participants. Not providing any written corrective feedback (that is, a control group) was not considered given that this action may be unethical and unusual in a language curriculum. Participants revised and rewrote their original compositions once again at home and recorded their thoughts during this revision stage. A questionnaire on their preference of type of WCF was administered at the end of the semester (see Appendix C).

The results revealed relatively both high depth of processing and level of awareness (at the level of understanding) during both types of feedback across all compositions. It

was observed, however, that the provision of metalinguistic WCF led to higher DoP (100%) as compared to that observed when processing direct WCF (60%). Participants also reported no preference for type of WCF, most likely due to the relatively similar depth of processing revealed in both WCF conditions. Regarding type of linguistic item (morphological vs. syntactic), the data revealed that participants processing the noun/adjective agreement with + High DoP / + awareness at the level of understanding together with ample practice and exposure (that is, outside of the composition writing phase) demonstrated a high level of accuracy (over 95%). Similar results (90%) were also found for processing the lower level of the complex *gustar* structure with a similar high DoP and awareness, even with less practice or exposure. However, these L2 writers demonstrated difficulty achieving + high DoP / + understanding for the higher level of *gustar* as revealed in the think aloud protocols, which demonstrated some confusion arriving at a full understanding of the complex structure.

The robust findings led to curricular changes by replacing the original compositions prompts that were shorter in length and more open-ended with the experimental ones that clearly revealed via the think aloud protocols the high level of student engagement and depth of processing during both the composing and revision stages of their compositions. One key methodological observation, however, was made by the authors with respect to a curricular approach to WCF research:

“At the same time, it was also noted that, in a quasi-experimental study embedded within the language curriculum across the entire semester, the role of WCF is arguably not the only variable that may contribute to subsequent L2 development. The writing component is not separate from other skill components in the curriculum, given that other activities and assignments do include practice with target linguistic items during the course of the semester, and there is repeated but differential exposure to target items in the content of the pedagogical materials throughout the semester.” (pp. 665-666)

This statement underscores, according to the authors, the quasi-experimental nature of ISLA *applied* studies with close ties to the language curriculum that does reflect more closely the authentic instructed setting but with one caveat: The full impact of WCF on subsequent L2 development may be diluted by the role of several other variables (e.g., individual differences, curricular differences, etc.).

As pointed out by Leow and Manchón (2022a), such a research design addresses a multitude of variables that may potentially play a role in the L2 writing process and product while firmly situated within the language curriculum and syllabus. All types of analyses (e.g., quantitative and qualitative analyses, between- and within-subjects etc.) may be used to provide more robust insights into the value of WCF, potential language learning, and the L2 writing process. “The true strength of the design is that the data are taken from different stages within an existing syllabus or language

curriculum, are authentic (as opposed to a controlled, laboratory setting), and are available to provide important insights not only in relation to the two stages of the writing process and the roles of several variables on overall writing ability but also provide important feedback to teachers on their students' progress with regard to their L2 writing ability" (Leow & Manchón, 2022a, p. 308). Finally, such a research design may also contribute to narrowing the gap between WCF researchers and teachers in the instructed setting, as discussed below.

Bridging the Gap between the WCF Researcher and the Teacher

The infamous researcher-teacher interface, that is, the perceived or real gap between ISLA researchers and L2 teachers, has been around for quite some time in the literature. McDonough and McDonough (1990), three decades ago, wrote of "a dichotomy between theory and practice, building a world in which teachers talk to teachers about techniques, and researchers and theorists talk to each other about research and theory" (p. 103) and this gap arguably remains in existence today. While many ISLA researchers appear to share the same goals of promoting effectively L2 learning in the classroom (Sato & Loewen, 2022), the steps toward this goal are often not collaborative. This lack of collaboration may be due to a long list of reasons for both researchers and teachers. For researchers, for example, there may be incompatibility between research findings, even if statistically significant, and robust pedagogical implications, the complexity of the classroom, the pressure to publish or perish, etc. For teachers, there may be the lack of time, their beliefs about the value of research in their teaching, the lack of recognition of their empirical endeavors, etc. (see Leow et al., 2022d; Sato & Loewen, 2022 for more elaboration). Among several suggestions to bridge the gap between the researcher and the classroom teacher is the call for formal (e.g., Macaro, 2003; Sato & Loewen, 2022) or informal (e.g., Ellis, 1997; Paran, 2017) teacher involvement in research. As discussed above, any research collaboration needs to be situated within the ISLA *applied* sub-strand that requires pedagogical (and curricular) ramifications derived from the findings. Sato and Loewen (2022) suggest moving away from a "research-based practice" perspective to a three-step "practice-based research" (PBR) in which researchers and teachers collaboratively (a) identify a pertinent topic of research, (b) create a methodology that is ecologically valid, and (c) have the findings evaluated by the more experienced teachers. According to Sato and Loewen, PBR, which is high in ecological validity, "emphasizes equal contributions by practitioners and researchers to discovery of more effective and efficient instructional technique as well as co-ownership of the research project" (pp. 516-517).

While Sato and Loewen's PBR suggestion and Leow's (2019) ISLA *applied* sub-strand are clearly well-intended, there are minimally two major issues that need to be considered, namely, the targeted experimental focus of the study and the ISLA researchers' access to teachers and the language curriculum. For example, an ISLA researcher who wants to investigate type of instruction on L2 development over the semester (as opposed to a one-shot laboratory-based design) may find it challenging

to persuade a language program director or an individual teacher to re-organize their syllabi and/or learning outcomes for instruction to accommodate their research design. On the other hand, WCF researchers can clearly promote this type of collaboration within the writing component of a language curriculum due to 1) the typical location of individual composition writing or digital collaborative writing (outside the instructed setting) and 2) the low impact of the research design on syllabus design.

Leow et al. (2022d), which is related to Leow et al.'s (2022b) study reported above, describes the steps to involve the teaching staff's collaboration in their empirical study: 1) Share the theoretical underpinning of and empirical motivation for the WCF study, 2) ask the teachers to select the targeted linguistic items they perceive to be problematic to their students, 3) discuss the research design to the teachers, 4) involve the teachers in the data collection phase of the study, 5) share and discuss the findings with the teachers, and 6) based on robust results, discuss the rationale for incorporating the experimental composition topics with the guided prompts into the writing component of the curriculum.


Conclusion

The written corrective feedback strand of research in ISLA is arguably one of the most popular strands of research that can span several levels of instructed educational contexts (e.g., primary, secondary, tertiary), populations (e.g., L1 and L2 learners, heritage speakers), and languages. At the same time, such research should be conducted within the setting in which it occurs, namely, the instructed setting or from an ISLA *applied* perspective, and, as an extension, within the language curriculum. WCF research should also take into account the type of curriculum (writing or language) it purports to address given the differences between these two curricula. It was observed that the operationalizations and measurements of what comprises the construct of learning are quite broad in the WCF literature and, for the most part, not aligned with what takes place in the instructed setting and language curriculum. If the link between WCF research and the language curriculum is acknowledged, then a curricular approach requires minimally two considerations, namely, 1) situating WCF studies within the context in which WCF does occur, that is, the instructed setting, which will allow the collection of authentic data from the L2 writer, both online and offline, within a given syllabus and over a period of time to simulate the language curriculum and 2) operationalizing the construct of learning based on curricular writing measures.

Given the need for research to be theoretically-driven, two recent theoretical underpinnings of WCF were first reported before probing deeper into a curricular approach to WCF research that has two potential advantages. The first advantage is that WCF researchers may avoid the broad operationalizations and measurements of the construct of learning in their research design by ensuring the ecological validity of their measures. To this end, it is recommended that they focus on the current features

assessed in the writing component of the language curriculum, namely, lexical and grammatical. To illustrate an exemplar of a curricular approach to WCF research, the research design and results of a theoretically-driven process-oriented ISLA *applied* study were reported. The second advantage lies in its potential contribution to narrowing the gap between WCF researchers and teachers in the instructed setting. It is hoped that WCF researchers consider the collaborative steps provided to involve teachers in WCF studies given that this avenue of research holds much promise for both these two populations of researchers and teachers.

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Appendix A

Composition Prompts

Composición 1: Yo mismo/a y mis clases 'Myself and my classes'

Write a composition about yourself and your classes. Answer each point to guide your composition. [Only pertinent prompts are provided.]

Párrafo (Paragraph) #1:

Introduce yourself including the personal information requested below.

1. Presentación de ti mismo/a (**your name** and **your personal characteristics** and **personality**. You must use at least 2 of the personal characteristic adjectives and 2 of the personality characteristic adjectives provided below PLUS any others if so desired).

[**Características personales:** *alto, bajo, mediano, guapo, bonito, delgado, gordo*]

[**Personalidad:** *simpático, introvertido, extrovertido, sincero, cómico, divertido, gregario*]

2. – 4.

Párrafo #2:

- 1.
2. Descripción de tus clases y tu estado temporal (**describe each class that you are taking** and **how you are (you feel) in each class**. For each class you describe, use adjectives from **Clases** below to describe the class and adjectives from **Estado temporal** below to describe your emotional state, PLUS any others if so desired.)

[**Clases:** *bueno, aburrido, intensivo, favorito, malo, espantoso, largo (long)*]

[**Estado temporal:** *tonto, perdido, serio, interesado, contento, aburrido*]

- 3.
4. The classes you like
5. The classes you don't like
6. The one class you like the best (*más*)
7. The one class you like least (*menos*)

Puntos de gramática para incluir en la escritura de la composición: **artículos; número y género** (concordancia); **verbos ser y estar; los números 0-30; gustar**

Extensión: **Aproximadamente 300 palabras.**

Appendix B

Composition Prompts

Composición 2: *La información personal y el horario de mis amigos 'Personal information and my friends' schedule'*

Write the personal information and daily schedule (morning, afternoon, and evening) of two friends, one male and the other female. Answer each point to guide your composition. [Only pertinent prompts are provided.]

Párrafo #1:

1. La información de tu **compañero y compañera (their names and physical characteristics and personalities)**. (You must use at least 2 of the personal characteristic adjectives and 2 of the personality characteristic adjectives provided below PLUS any others if so desired).

[**Características:** *alto, bajo, mediano, guapo, bonito, delgado, gordo*]

[**Personalidad:** *simpático, discreto, tímido, creativo, decidido, divertido, metódico*]

2. – 7.
8. The classes each one of your friends likes
9. The classes each one doesn't like
10. The class each one likes the most
11. The class each one likes the least

Párrafo #2:

Puntos de gramática:

El número y género (concordancia); verbos *ser* y *estar*; el tiempo presente, la hora, la frecuencia (siempre, nunca, a veces etc.), gustar

Extensión: **Aproximadamente 300 palabras.**

Appendix C

Participant Questionnaire

1. Your instructor used two different types of feedback methods listed below this semester. Which composition feedback do you believe was more beneficial to the development of your Spanish writing? [Options: Direct feedback (instructor corrects your errors by providing the correct wording), Metalinguistic feedback (instructor writes correction symbols and you figure out how to correct your error)]
2. Why do you think the method you chose helped you improve more than the other method?
3. If you spoke your thoughts aloud while writing, what did you think of that experience?