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Using Lessons From Collaboratively Processing Written Corrective Feedback

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Abstract: This case study investigates how two English language learners used knowledge they coconstructed while collaboratively processing written corrective feedback (WCF) on jointly produced texts. It does so through the lens of sociocultural theory (SCT). This study extends the extant literature by investigating how coconstructed knowledge emerging from learners’ interactions is manifested in subsequent individual writing and speaking tasks that are similar—but not identical—to the original collaborative writing tasks. Data were collected from video recordings of participants’ interactions as they collaboratively processed WCF; individual retrospective interviews, during which participants watched the video recordings and identified what they learned; and observations of individual writing and speaking tasks. Results show that participants were able to use some of the knowledge generated through their interactions when completing writing and speaking tasks individually. Additionally, participants displayed the ability to transform this knowledge to meet the demands of new contexts. These results indicate that usage of the knowledge generated while collaboratively processing WCF was not mindless copying; instead, participants were able to either internalize or begin the process of internalizing this knowledge.

Keywords: written corrective feedback, sociocultural theory, collaboration, internalization

Author Note

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Using Lessons From Collaboratively Processing Written Corrective Feedback

Since Truscott (1996) proposed abandoning the practice of correcting errors in learners’ writing, the provision of written corrective feedback (WCF) has received substantial attention from language writing researchers (Bitchener, 2008; Liu & Brown, 2015). However, according to Lee (2014), few studies have been underpinned by sociocultural theory (SCT). Within the socioculturally informed literature, some studies have enacted principles of SCT by studying learners who collaboratively process WCF on jointly produced texts (e.g., Adams, 2003; Storch & Wigglesworth, 2010; Swain & Lapkin, 2002). These studies show learners not only can coconstruct knowledge while collaboratively processing WCF but also can draw on that knowledge when completing individual writing tasks.

To date, researchers have tested for the ability to draw on coconstructed knowledge when completing tasks individually, using one episode of writing; however, multiple episodes of output should be used when attempting to measure learning (Bitchener & Storch, 2016). Additionally, the posttests applied in the studies previously mentioned either repeat the original writing task or require learners to edit their original attempt at the task. Although the benefits of such posttests are undeniable, there is value in investigating if learners are able to transfer jointly constructed knowledge to new contexts (Lantolf & Poehner, 2014; van Oers, 1998). Furthermore, from an SCT perspective, investigating if any knowledge coconstructed when collaboratively processing WCF can be used in spontaneous output is valuable due to declarative knowledge potentially being accessed smoothly and fluently (Lantolf et al., 2015).

This study helps to fill these gaps by observing and interpreting how participants utilize knowledge they coconstruct with their writing partner while collaboratively processing WCF on their jointly produced texts. The utilization of this knowledge is observed in multiple individual writing and speaking tasks.

Literature Review

In line with this paper’s aims and theoretical foundations, this literature review begins with an outline of internalization and imitation from an SCT perspective. This is followed by a discussion of socioculturally informed research on WCF in which learners work collaboratively throughout the writing process.

Internalization and Imitation

SCT posits that the human mind is mediated (Vygotsky, 1986). Just as tools are used to assist our interactions with our physical surroundings, we mediate our higher mental functions through symbolic tools, such as language (Lantolf, 2000). This mediation, or assistance, takes three forms, which are referred to as object-, other-, and self-regulation (Lantolf & Appel, 1994). In language learning, object-regulation refers to learners using tools such as a dictionary to mediate their behavior (Lantolf et al., 2015). Other-regulation refers to assistance being provided by another person, with the assistance being provided primarily through participation in dialogue (Lantolf & Appel, 1994). Self-regulation refers to the internalization of object- and other-regulation as a learner shifts toward requiring less assistance (Lantolf et al., 2015).

The internalization of mediational means is negotiated through both the interpersonal and intrapersonal planes (Winegar, 1997). Accordingly, internalization is not a unidirectional flow of knowledge from the interpersonal plane into the mind of learner, but it involves externalization. Therefore, the output of a learner may be evidence not of internalization itself but of internalization taking place. Van Oers (1998) described this as a process of recontextualization, with learners using what they learned in a specific social context and then transferring and transforming this to meet the demands of a similar (but not identical) context.

Imitation plays a key role in internalization (de Guerrero & Commander, 2013; Swain et al., 2015). Imitation is not thoughtless verbatim repetition, but it is transformative, intentional, and goal-directed action (Vygotsky,
2012) and can take place during interactions that occur well after the original instance of mediation (Tomasello, 2003). The transformative nature of imitation results in language learners sometimes producing unnatural or ungrammatical utterances (Saville-Troike, 1988). Such utterances do not necessarily reflect an insufficiency of the initial instance of learning, but they may form an important part of the process of internalization. Such a view of internalization and imitation is in line with SCT, which considers the development of an individual to be unpredictable, even including “regression to earlier forms of thinking” (Lantolf & Thorne, 2006, p. 52).

From an SCT perspective, the aim of language learners collaboratively processing WCF on jointly produced texts is to first utilize object- and other-regulation while processing the feedback and then shift toward self-regulation by internalizing the object- and other-regulation; imitation is the main vehicle through which this internalization occurs. Therefore, the benefits of collaboratively processing WCF should not be measured purely by whether learners are accurate when they use the knowledge generated via the WCF in individual writing and speaking tasks. Imitation, by its transformative nature, includes inaccurate usage. Consequently, an alternative way to measure the benefits of collaboratively processing WCF is to search for imitation.

Collaboratively Processing WCF

One way in which learners may undertake other-regulation when processing feedback is to process the feedback collaboratively. Swain and Lapkin (2002) reported the outcomes of a pair working collaboratively throughout the writing process. After coconstructing a text, they received feedback in the form of a reformulation—considered a type of direct feedback (Polio, 2012). After discussing the reformulation, participants took part in a stimulated recall session to identify what they had learned, and then they revised a typed-up version of their original text. Swain and

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1 Cohen (1983, p. 4) defined a reformulation as “having a native writer of the target language rewrite the learner’s essay” while maintaining the intention of the original author(s).
2 Direct WCF identifies the error and provides the correct form (van Beuningen et al., 2008).
Lapkin found that participants were able to coconstruct knowledge while processing the WCF and use it when individually completing the posttest. The two researchers concluded that opportunities to discuss the feedback with a peer facilitated this process. Swain (2006, p. 97) later explained that this “process of talking-it-through” may lead to learning, with the term *languaging* being used to describe learners using language to mediate their problem-solving. The notion of learners coconstructing knowledge while collaboratively processing WCF on jointly produced texts and drawing on this knowledge in subsequent individual output was corroborated by Adams (2003) and Brooks and Swain (2009).

Storch (2010), Storch and Wigglesworth (2010), and Wigglesworth and Storch (2012) investigated the impacts of different types of feedback on the process of collaboratively processing WCF. All of these studies form part of a larger dataset in which participants produced a text in pairs. Five days later, either indirect feedback\(^3\) via editing codes or direct feedback (reformulation) was provided to all pairs; immediately after processing the feedback, pairs collaboratively rewrote their original attempt at the task without referring to the feedback they had received. To test for retention, participants completed the same task individually 23 days later. The results once again showed that learners can coconstruct knowledge while collaboratively processing feedback and can draw on that knowledge when producing individual output.

Researchers have also conducted studies that use model texts rather than reformulations. Coyle et al. (2018) defined a model text as a native-like text attuned to learners’ level but not based on their original attempt at the task. In other words, after learners attempt a writing task, they receive a model text that acts as an example of how a more advanced user of the language would complete the same writing task. When used as feedback for writing tasks, model texts have been found to be beneficial for learners when they notice differences between their own text and the model text (Coyle et al., 2018; García Mayo & Labandibar, 2017; Hanaoka, 2007;\(^3\) Indirect WCF only identifies that an error occurred (van Beuningen et al., 2008).)

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Hanaoka & Izumi, 2012; Yang & Zhang, 2010). Unlike reformulations, a single model text is also suitable for multiple learners.

While studies investigating the use of model texts do not fit neatly into an SCT framework and mostly involve learners working individually rather than collaboratively, results show that model texts assist learners in finding solutions to problems visible in their output as well as covert problems (i.e., learners’ problems in expressing themselves that were not visible in output; see Hanaoka & Izumi, 2012; Yang & Zhang, 2010). Additionally, learners were able to utilize some of these solutions when completing posttests (Coyle et al. 2018; García Mayo & Labandibar, 2017; Hanaoka, 2007; Hanaoka & Izumi, 2012; Yang & Zhang, 2010). Of particular relevance to the current study is the work of Coyle et al. (2018) and Yang and Zhang (2010), in which participants collaboratively processed feedback on jointly produced texts, with both studies noting the important role dialogue plays when learners coconstruct knowledge while processing model texts.

**Study Rationale and Research Question**

The research to date has suggested that collaboratively processing WCF through coconstructed texts offers benefits for learners, regardless of whether the WCF is indirect, a reformulation, or a model text. However, there are caveats to this evaluation. Firstly, apart from Coyle et al. (2018), the studies discussed in the previous section employed a single posttest to investigate participants’ ability to draw on previously coconstructed knowledge while completing tasks individually. As noted earlier, SCT holds that learning is nonlinear (Lantolf & Thorne, 2006); hence, a more complete picture of the internalization of coconstructed knowledge is likely to be gained by observing multiple episodes of output rather than a single episode (Bitchener & Storch, 2016). While Coyle et al. utilized multiple posttests, the tests were completed in pairs. Without denying the value of the insights this study provides, development within SCT is concerned with how learners internalize mediational means. Therefore, there
is a need to investigate learners’ ability to use the knowledge they coconstruct via collaboratively processing WCF—do they use this knowledge when producing output in the absence of object- and other-regulation on multiple occasions?

The posttests employed in previous research required either additional attempts at the original task (Adams, 2003; Coyle et al., 2018; Storch & Wigglesworth, 2010; Yang & Zhang, 2010) or edits of the original attempt (Brooks & Swain, 2009; Swain & Lapkin, 2002). While such methods have benefits, participants may have merely reproduced memorized chunks during their posttest—a potential shortcoming noted in Wigglesworth and Storch (2012). As previously noted, internalization includes a process of recontextualization, in which learners use what they have learned in specific social contexts and transfer and transform this knowledge to meet the demands of a similar—but not identical—context (van Oers, 1998). Accordingly, investigating whether this coconstructed knowledge can be used in tasks which are similar, but not identical, to the original collaborative task is needed. Finally, all posttests to date involved writing tasks, not speaking tasks. SCT considers declarative knowledge to have the potential to be accessed smoothly and fluently (Lantolf et al., 2015). Declarative knowledge is typically learned “through intentional and conscious instruction” (Lantolf et al., 2015, p. 220) or “conscious attention to stimuli” (Ullman, 2014, p. 139). Thus, investigating if the knowledge coconstructed when collaboratively processing WCF can be used in spontaneous output is justified. Based on these gaps in the literature, the following research question was formulated: While completing individual written and spoken output, how do adult English language learners studying in Australia draw upon previously coconstructed knowledge generated via collaboratively processing WCF on jointly produced writing tasks?

Method

The larger study from which this paper is drawn (Carr, 2020) generated a dataset about the experiences of four English language learners while collaboratively processing WCF. This paper focuses on how two of these adult learners used the knowledge they coconstructed while processing feedback to perform subsequent writing and speaking tasks individually.

Case Study

In line with this study’s aims of providing a rich description of what participants learn while collaboratively processing WCF and how they use this knowledge, a case study approach was adopted. As Flyvbjerg (2011) argued, using a case study is not a methodological choice, but a choice of what is to be studied. Case studies are not generalizable to populations, but rather the researchers who use them aim to be generalizable to theoretical positions (Yin, 2009). Therefore, the aim of this study is to provide insights that further our understanding of the role WCF can play in language development.

Participants

Carol and Kazue (pseudonyms) expressed interest in this study by responding to a call for participation. Previously strangers, they were selected to participate as a pair due to their similar English language levels, professional backgrounds, and goals.

Carol, a Vietnamese gastroenterologist in her thirties, migrated to Australia in 2017. During this study, she was working toward accreditation to practice medicine in Australia, which involves passing the medical Occupational English Test (OET) and volunteering at a local medical clinic. Kazue, a Japanese doctor in her forties, was studying English in Australia to increase her International English Language Testing System (IELTS) score to facilitate postgraduate medical studies. To achieve this goal, Kazue attended daily IELTS preparation classes. OET and IELTS test
scores showed both participants were intermediate-level English language learners, with an approximate IELTS band of 6.0.

**Data Collection and Implementation**

Data were collected from video recordings of participants collaboratively processing WCF on their jointly produced texts, audio-recorded retrospective interviews, and participants’ writing and speaking tasks. Over five weeks, I delivered a series of ten 90-minute English language lessons. In response to participants’ requests, the lessons focused on listening, writing, and speaking tasks related to IELTS and OET preparation. During these classes, participants coconstructed two texts—a collaborative graph description and a collaborative doctor’s referral. The former is based on the first writing task of the IELTS academic test and utilizes a line graph description task (Tyreman, 2012); the latter is based on the writing section of the medical OET and involves a task to create a doctor’s referral letter (Maiva Corporation, n.d.). Each coconstructed text went through two drafts. First drafts received indirect feedback and second drafts received direct feedback in the form of an example answer, resulting in participants collaboratively processing WCF four times. These feedback sessions were video recorded.

In line with SCT research arguing against predetermining emerging functions (Valsiner & Van der Veer, 1999) and to account for “initially unforeseen learning” during collaboration (Wells, 1999, p. 345), the indirect WCF was unfocused. It addressed both grammatical and content-level issues. Sentences that contained a grammatical error were highlighted in orange. No additional information was provided, increasing the chances of participants needing to pool their knowledge or use tools such as online literary resources when responding to the WCF. An example of this type of feedback is:

*She presented the first time on 15th April due to stomachache which caused her indigestion.*
Content feedback was provided by highlighting sentences in green. In line with Ashwell (2000), content feedback addressed issues such as cohesion, clarity, and relevance, and it was accompanied by prompts to guide responses. An example of this feedback is:

Is there a better way to express “found no interest in food”?

She found no interest in food

A blue highlight was used for sentences that required editing for both content and grammar. No additional information was given for grammatical errors, but written prompts were provided for content-level issues.

Coal’s usage increased by 70%?

On the other hand, coal usage started in 1800, increasing significantly until 1900 by 70%, then dropped and harvested in 2000.

Participants received direct feedback on their second draft in the form of an example answer. The example answer was a hybrid between a reformulation and a model text—it incorporated features that dealt with issues reflected in participants’ earlier attempts at the task. This was achieved by adapting the example answers provided by Tyreman (2012) and Maiva Corporation (n.d.) for the IELTS and OET writing tasks, respectively.

I conducted individual retrospective interviews, which were audio recorded, after the second and fourth feedback sessions. Each interview consisted of a stimulated recall and a semistructured interview. The first interview discussed feedback sessions 1 and 2, the second discussed feedback sessions 3 and 4. During the stimulated recall, participants watched the video recording of their feedback sessions. Either a participant stopped the video when they felt knowledge had been coconstructed or I stopped the video when it appeared they had agreed on a response to an instance of WCF. This allowed participants to identify any knowledge that was coconstructed during the interaction. The stimulated-recall technique utilized in the interviews was used effectively in earlier studies of collaborative WCF processing (see Adams, 2003; Swain & Lapkin, 2002).

Member checking was performed throughout the study to ensure participants’ perceptions were represented accurately. Truscott and Hsu (2008) noted that learning generated via WCF may be “new knowledge or simply priming of existing knowledge” (p. 293). Therefore, participants also identified whether any knowledge generated while processing the feedback was primed or new. An example of how the video recordings were used to identify knowledge that was coconstructed while collaboratively processing feedback is shown in Example 1.

Example 1
The following sentence was highlighted in orange because it contains a grammatical error:

However, oil grew up more steep than Gas.

The feedback initiated the following interaction:

197  Kazue:  oil grew up more steep, more steep (looking away; low volume)
198  Carol:  I don't know what, what wrong with this sentence (laughs) grew up
199  Kazue:  oil usage, maybe, oil usage (writes correction on draft 1—adding in usage), grew up more steeply (low volume; no eye contact), more steeply (said with higher volume and appears to realize error), more steep (looks at Carol)
200  Carol:  yeah
201  Kazue:  more steeply
202  Carol:  more steep, more steeply
203  Kazue:  ah, adjective adverb
204  Carol:  I think it's
205  Kazue:  steep is okay? More steeply (no eye contact, looking away); maybe it must be adverb; steeply, yes, than gas

After watching the video recording of this interaction, Kazue identified the adverbial form of steep as an instance of preexisting knowledge being primed. Carol identified “steeply” as an instance of new knowledge being constructed.
Coconstructed Knowledge Points and Their Usage

When presenting instances of learning such as the one shown in Example 1, using terms such as linguistic item or instance of learning became problematic; therefore, I use the term coconstructed knowledge point (CKP) to refer to instances of the participants identifying the learning they derived through interacting with WCF, their partners, and inanimate experts (such as dictionaries and translation software). Consequently, I use the term new CKP to refer to the CKPs that participants identified as the creation of new knowledge and the term developing CKP for those instances that they identified as the refinement of preexisting knowledge.

In feedback sessions 1 and 2, the participants reviewed WCF provided on the collaborative graph description. The participants had the opportunity to use CKPs generated in these feedback sessions during four other tasks: individual written graph description 1 and 2 and individual spoken graph description 1 and 2. All of these tasks were line graph descriptions, with each new line graph including some features of the original. In feedback sessions 3 and 4, participants reviewed the WCF provided on the collaborative doctor’s referral letter. They completed three subsequent individual tasks that facilitated the opportunity to utilize CKPs from these feedback sessions: the individually written referral 1 and 2 and the individual spoken doctor’s referral. All tasks required a patient to be referred for further investigation, but patient symptoms and circumstances differed. Facilitating the usage of all identified CKPs in a nonrepeat task was impractical; therefore, while each individual task allowed for a high proportion of CKPs to be drawn upon, it could not be expected that all identified CKPs were used in each task.

To familiarize participants with recording monologues, participants recorded five monologues prior to individual spoken graph description 1. Participants identified the usage of CKPs in their individual output during the second retrospective interview. Transcripts of the video recordings and participant output are available (see Carr, 2022). A timeline of the data collection process is shown in Figure 1.

Figure 1

*Data Collection Timeline*

Day 1  Lesson 1
Day 4  Lesson 2
Day 7  Lesson 3; Collaborative Graph Description
Day 11  Lesson 4; Collaborative Graph Description Indirect Feedback (Feedback Session 1)
Day 12  Lesson 5; Collaborative Graph Description Example Answer (Feedback Session 2); Individual Written Graph Description 1
Day 15  Kazue Retrospective Interview 1
Day 18  Carol Retrospective Interview 1 (Conducted Before Lesson 6); Lesson 6; Collaborative Doctor's Referral; Individual Spoken Graph Description 1
Day 21  Lesson 7; Collaborative Doctor's Referral Indirect Feedback (Feedback Session 3)
Day 25  Lesson 8; Collaborative Doctor's Referral Example Answer (Feedback Session 4); Individual Written Doctor's Referral 1; Individual Spoken Graph Description 2
Day 28  Lesson 9; Individual Written Graph Description 2; Individual Spoken Doctor's Referral
Day 32  Lesson 10; Individual Written Doctor's Referral 2
Day 35  Kazue Retrospective Interview 2
Day 37  Carol Retrospective Interview 2

**Data Analysis**

The video recordings of all four feedback sessions and audio recordings of the retrospective interviews were transcribed. All collaborative
and individual output were typed up, and instances of a participant identifying the use of a CKP were noted. All CKPs identified by participants were checked to ensure participants evidenced the construction of this knowledge during their interactions with each other, the feedback, or resources such as an online dictionary. Two of the author's colleagues also reviewed the CKPs identified by participants to ensure the learning was evidenced in an interaction while processing the feedback.

As noted previously, SCT views development as nonlinear (Lantolf & Thorne, 2006). The imitation of knowledge is a transformative process (Vygotsky, 2012), which may result in incorrect usage (Saville-Troike, 1988) and which can occur after the initial social interaction (Tomasello, 2003). Therefore, participants’ usage of CKPs during individual output was not analyzed in terms of correct usage; rather, it was analyzed in terms of attempts to draw upon the knowledge which was coconstructed while collaboratively processing feedback. This includes transforming the knowledge to meet the needs of the new situation (Example 2) and incorrect usage (Example 3).

**Example 2**

Kazue identified the phrase “come into use” as a new CKP generated during feedback session 2. She then transformed this knowledge to meet the demands of graph description 2 as follows:

“mobile phone came into usage in nineteen nine”

**Example 3**

Carol identified the lexeme “obsolete” as a new CKP coconstructed during the first feedback session. When completing individual written graph description 2, she drew on this knowledge as follows:

“As a conclusion, coal was the most important source in the past which totally obsoleted in 2010.”

Findings

This section presents both a summary and specific examples of how participants used CKPs in individual output. The usage of CKPs that participants generated while processing the indirect feedback and example answer for the collaborative graph description (feedback sessions 1 and 2, respectively) is presented first, followed by CKPs that participants constructed while reviewing the indirect feedback and example answer for the collaborative doctor referral (feedback sessions 3 and 4, respectively). All excerpts taken from participant output are presented verbatim.

CKPs Generated While Processing the Indirect Feedback and the Example Answer for the Collaborative Graph Description (Feedback Sessions 1 and 2)

Carol and Kazue were given four opportunities to use CKPs from feedback sessions 1 and 2 in individual output. These tasks were performed as follows: individual written graph description 1 and 2 were completed on days 12 and 28, respectively, and individual spoken graph description 1 and 2 were completed on days 18 and 25, respectively.

During the first retrospective interview, Carol identified four developing CKPs and 10 new CKPs generated during feedback sessions 1 and 2 (see Appendix A for details). As shown in Figure 2, Carol was able to utilize two developing CKPs and two new CKPs when completing her individual writing and speaking tasks. When completing speaking tasks, Carol only utilized knowledge she identified as developing CKPs.

Kazue identified five developing CKPs and eight new CKPs constructed during the first two feedback sessions (see Appendix B for details). Kazue also utilized CKPs in both her spoken and written output. In total, she used four developing CKPs and four new CKPs when completing her individual written and speaking tasks. Because she utilized two developing CKPs in individual spoken graph description 1 and then one new CKP in individual spoken graph description 2, Kazue provides evidence that both primed and new knowledge generated via WCF can be...
utilized in spontaneous output. Unlike Carol, Kazue tended to use different CKPs in each task, with no single task accurately displaying what she had learned while processing WCF with Carol.

Figure 2

CKP Usage, Feedback Sessions 1 and 2

A specific example of Carol drawing on the knowledge coconstructed via collaboratively processing WCF is the lexeme obsolete. Carol identified learning the meaning of obsolete as a new CKP generated during
feedback session 1, with the lexeme appearing in draft 2 of the collaborative graph description as follows: “making wood as a obsolete fuel.” Carol did not use the CKP until her fourth individual task (individual written graph description 2), for which she wrote: “coal was the most important source in the past which totally obsoleted in 2010.”

As noted previously, imitation plays a key role in internalization. Imitation is potentially transformative (Lantolf & Thorne, 2006), but transformation sometimes results in ungrammatical usage (Saville-Troike, 1988). Therefore, Carol’s inaccurate attempt to use the CKP indicates her internalization process rather than a backward step in development.

Kazue identified the phrase come into use as a new CKP generated during feedback session 2. The phrase appeared as “oil came into use after 1900” in the example answer. She used the phrase twice in subsequent tasks: on individual spoken graph description 2, she said, “Mobile phone came into usage in nineteen nine”; and on individual written graph description 2, she wrote, “Natural gas, which came into use in 1980.” Without denying the possibility of memorization when feedback takes the form of an example answer, Kazue displays evidence of transformation as she changes use to usage and uses the phrase in a relative clause.

CKPs Generated While Processing Indirect Feedback and the Example Answer for the Collaborative Doctor’s Referral (Feedback Sessions 3 and 4)

Carol and Kazue performed three tasks that provided opportunities to use CKPs from feedback sessions 3 and 4. These tasks were performed as follows: individual written doctor’s referral 1 and 2 were completed on days 25 and 32, respectively, and the individual spoken doctor’s referral was completed on day 28.

Carol identified 14 developing CKPs and 5 new CKPs (see Appendix C for details) generated via feedback sessions 3 and 4. She utilized nine developing CKPs and three new CKPs when completing individual written referral 1 and 2 and the individual spoken doctor’s referral. As shown in Figure 3, most of the CKPs Carol used when completing the writing tasks
were CKPs concerned with letter-writing conventions. While Carol once again showed the ability to use CKPs in her spontaneous output, she only used knowledge she identified as developing CKPs.

Kazue identified five developing CKPs and nine new CKPs constructed during feedback sessions 3 and 4 (see Appendix D for details). As shown in Figure 3, Kazue used 13 of these when completing her individual written and spoken referrals. Furthermore, Kazue was less sporadic in the CKPs she used from feedback sessions 3 and 4 when compared with CKPs from feedback sessions 1 and 2—in other words, she used the same CKPs on several occasions in all of her individual output rather than using CKPs only once. Once again, Kazue utilized both a developing and a new CKP in her speaking tasks.
A specific example of both participants drawing on knowledge they coconstructed while processing feedback is the verb *radiate* taking the
preposition to. Carol identified this as a developing CKP constructed during feedback session 3; Kazue identified it as a new CKP. Their response to the feedback resulted in the following solution in their second draft of the collaborative doctor’s referral: “the pain worsened [sic] and began to radiate [sic] to her back and lower abdomen.” In the individual spoken doctor’s referral, Carol used this CKP as follows: “pain which radiating to the, his lower back.” She also used this CKP in individual written doctor’s referral 2: “and radiated to the upper abdomen.” Kazue used the CKP three times: “of the abdomen without radiation to other parts” (individual written doctor’s referral 1), “stomach pain and, which radiate to lower back” (individual spoken doctor’s referral), and “radiate to upper abdomen” (individual written doctor’s referral 2). While the preposition to itself cannot be transformed, Carol used the verb radiate with its accompanying preposition in a variety of tenses when referring patients with different symptoms. Kazue transferred the use of the preposition to accompany the noun form of the verb when completing individual written doctor’s referral 1.

Together, the two participants drew on just over 60% of all CKPs on at least one occasion when completing individual writing and speaking tasks. Over the course of this study, Carol utilized 48% of CKPs by using 11 of 18 developing CKPs and five of 15 new CKPs on at least one occasion when completing her individual writing and speaking tasks. Additionally, she employed six developing CKPs and four new CKPs on two or more occasions. This suggests that her usage of CKPs was not merely a collection of one-offs, but that she had either internalized, or begun to internalize, almost half of the CKPs coconstructed while she and Kazue collaboratively processed WCF. While Carol’s overall usage of CKPs indicates that she drew on both developing and new CKPs in similar amounts, she was more likely to use developing CKPs than new ones during spontaneous speech.

Kazue employed a higher percentage of CKPs than Carol when completing her individual tasks, using 77% of CKPs. She employed
eight of her 10 developing CKPs and 13 of her 17 new CKPs on at least one occasion, and she applied five developing and six new CKPs on two or more occasions. In both writing and speaking tasks, Kazue used developing and new CKPs in similar amounts. This suggests that, for Kazue, some of the declarative knowledge she and Carol generated while processing WCF became accessible to her in a manner similar to procedural knowledge, but in a short amount of time. Procedural knowledge is usually (a) not learned intentionally but “acquired in immersions settings” (Lantolf et al., 2015, p. 219) through consistent exposure over an extended period of time (Ullman, 2014) and (b) readily accessible without conscious practice.

Discussion

This study traces how participants attempted (or did not attempt) to use what they identified as the learning they generated via collaboratively processing WCF on IELTS and OET writing tasks in individual writing and speaking tasks. I discuss these findings in relation to earlier research on the collaborative processing of WCF, and then I consider the factors that may have influenced participants’ usage of CKPs in individual output.

The findings show that participants were able to use their coconstructed knowledge when completing writing and speaking tasks individually. This result extends the extant literature by requiring participants to complete multiple episodes of written and spoken output, which involves some degree of transfer. Additionally, this was not mindless copying—per Lantolf and Thorne’s (2006) description of imitation and internalization, participants transformed CKPs to meet the demands of different contexts.

Directly comparing the present study with earlier research such as Adams (2003) and Swain and Lapkin (2002) is problematic for several reasons. Unlike earlier research, this study (a) contained tasks that involved some degree of transfer; (b) incorporated speaking tasks; and (c) analyzed data in terms of attempts to use coconstructed knowledge (including ungrammatical usage) rather than analyzing usage in terms

of “more or less target like” (Adams, 2003, p. 360). However, in a similar manner to previous studies, this case study found participants were able to draw on a large percentage of the knowledge they coconstructed when collaboratively processing WCF on jointly produced texts. Collectively, participants drew on just over 60% of CKPs on at least one occasion when completing individual writing and speaking tasks. However, Kazue utilized noticeably more CKPs (77%) in her output than Carol (48%).

While the reasons for Carol’s lower usage of CKPs are unclear, participants noted factors that impeded their usage of CKPs during their second interview. These factors were anxiety, a lack of practice, and learner agency. Carol explained that nerves were a factor when she completed individual written graph description 1, stating she felt “so nervous” and “it’s [CKP] somewhere in my mind [but] it cannot came [sic] out.” CKPs were not practiced in the classes included in this study, and participants stated they did not practice CKPs during private study outside of these classes. This lack of practice appears to have impeded CKP usage in individual output. Carol stated she remembered more CKPs than evidenced in her output, but she could not “speak it out” during the speaking tasks. Similarly, Kazue said, “I read it, I can understand, but writing is I need to practice it a little bit more.” This perspective was evidenced by Carol explaining the meaning of four unused CKPs and Kazue two during their second interviews. The interviews were not designed to test unused CKPs; however, they allowed participants to display their understanding of some CKPs. Therefore, the numbers expressed here are not intended to indicate which participant retained more CKPs; rather, they show that participants were unable to use some CKPs in individual tasks despite being able to recall the knowledge later.

Learner agency also influenced Kazue’s usage of CKPs. When discussing her nonusage of “level off” in individual written graph description 1 and individual spoken graph description 2, she commented, “I used ‘at the top of’ so maybe, uh, it means already like ‘level off’ . . . then I can’t use another word, another phrase.” These comments suggest Kazue
sometimes exercised her agency and used linguistic resources she found more convenient rather than specific CKPs constructed during feedback sessions, thus reducing the amount of learning evidenced in her output. The factors participants identified as impeding usage of CKPs add to previous research on WCF by highlighting that participants are unlikely to employ all the learning they generate while processing feedback in their individual output.

Most CKPs used during spontaneous output were identified as developing CKPs. The knowledge coconstructed during feedback sessions in this study contained the characteristics of declarative knowledge (see Ullman, 2014), thus corroborating Lantolf et al.’s (2015) argument that declarative knowledge can be accessed smoothly through practice. The social interactions in which these CKPs were generated likely acted as a type of practice for participants to further develop their knowledge of, and ability to access, developing CKPs. However, some new CKPs were used in spontaneous output. Participants stated that they did not practice CKPs privately, so the usage of these new CKPs (a) contradicts the need for learners to practice them to facilitate the smooth access of this knowledge and (b) indicates some declarative knowledge coconstructed through social interaction becomes available for spontaneous speech acts without deliberate practice.

CKP usage increased as the study progressed; factors that may have induced this trend require consideration. As already noted, participants stated they did not practice CKPs privately. Participants’ milieus may have been important. CKPs from the collaborative graph description (feedback sessions 1 and 2) were unlikely to be encountered while Carol volunteered at a medical clinic, but she probably would have opportunities to encounter CKPs generated from the collaborative doctor’s referral (feedback sessions 3 and 4). Carol’s individual output used four CKPs from feedback sessions 1 and 2 and 11 from feedback sessions 3 and 4; however, Carol indicated this was not due to her work environment. During member checking, she noted a significant disparity between the requirements of

the medical OET exam (upon which all doctor referral tasks were based) and her workplace. Therefore, the increase in CKP usage may have been related to Carol’s goal of passing the OET exam. Kazue’s daily IELTS classes likely provided opportunities to interact with CKPs from the collaborative graph description but not CKPs related to the collaborative doctor’s referral. Nonetheless, Kazue used significantly more CKPs from the doctor’s referral (13) than the graph description (8), indicating her daily English classes did not cause her to use CKPs more frequently in the individual tasks she completed in this study. It is also possible participants reflected on CKPs in subvocal private speech. Nevertheless, both practice of and exposure to CKPs outside this study appear to have had minimal effect on CKP usage in individual output.

**Conclusion**

In this research I set out to track how knowledge coconstructed while collaboratively processing WCF on jointly produced IELTS and OET writing tasks was used when participants individually completed subsequent tasks that were similar, yet not identical, to the original tasks. This case study found that the knowledge generated through collaboratively processing WCF on jointly produced texts was able to be transferred to meet the demands of similar contexts. Based on my findings, I note the following implications for language teachers and researchers.

First, in addition to supporting previous research advocating for collaboration throughout the writing process (e.g., Storch & Wigglesworth, 2010; Swain & Lapkin, 2002), any learning generated by students who collaboratively process WCF may extend to new individual output—including speaking tasks. Second, in spontaneous output participants used some new knowledge that met the characteristics of declarative knowledge, despite no evidence of practice to facilitate its smooth access. This supports the notion that declarative knowledge can be useful in spontaneous output; yet, in some cases, it contradicts the need for practice to allow smooth access. Third, factors such as participant anxiety, learner agency, and a
lack of practice reduced participants’ usage of coconstructed knowledge in individual output. Accordingly, this study highlights the need for learners to be provided with multiple opportunities to not only evidence what they learn during pair work but also further internalize this knowledge. These opportunity tasks should not be limited to writing tasks—they should include speaking tasks. One pedagogical implication for this finding is teachers need to regularly provide both speaking and writing tasks that contain similar features to the original pair/group writing task. Doing so may facilitate not only the opportunity for learners to more accurately display what they learn while collaboratively processing WCF but also the internalization of any coconstructed knowledge.

Despite the new insights provided by this study, some limitations need to be addressed. First, it should be reiterated that this research was a case study—the results are not generalizable to all possible settings and participants. Second, the writing tasks used in this study, a line graph description and a doctor’s letter of referral, enabled coconstructed knowledge to be easily transferred into similar—but not identical—tasks. Tasks of a different genre may not allow coconstructed knowledge to be transferred so easily. Third, it is possible that participants came to suspect that this study was investigating how knowledge coconstructed through their peer-to-peer interactions was being used in their individual output. While this limitation would not influence their ability to draw on any coconstructed knowledge, it may have influenced their agency when completing individual tasks. Participants did not receive additional mediation when they used coconstructed knowledge inaccurately in their individual output—it was beyond the scope of this study. Observing how learners engage with additional feedback on their individual tasks and how they progress toward self-regulation in longitudinal studies are two areas future research could explore. Such an exploration could advance our understanding of how language learners coconstruct knowledge during pair/group work and then, through imitation and additional mediation, progress toward self-regulation.
References


Maiva Corporation (n.d.). *Quick learn test material*. Maiva Corporation.


Appendix A

CKPs Identified by Carol During Feedback Sessions 1 and 2

**Feedback Session 1**
- Developing CKPs: "Halve" includes "go down" in its meaning
- New CKPs: Adverbial form of "steep", "That" can be used as a pronoun, Meaning of "obsolete"

**Feedback Session 2**
- Developing CKPs: Text structure, Phrase "it can be seen" to introduce features of graph, Phrase "reach its peak" to describe variable’s highest level
- New CKPs: Noun usage of "decline", Meaning of "advent," "negligible," and "level off", Task strategy of using simple past tense to complete the task, Phrase "come into use" to describe advent of new technology, Ability for gerunds to start a sentence

Appendix B

CKPs Identified by Kazue During Feedback Sessions 1 and 2

Feedback Session 1
Developing CKPs
- "Halve" includes "go down" in its meaning
- Adverbial form of "steep"

New CKPs
- Preposition "in" with noun "trend"
- "Account for" to describe a particular amount

Feedback Session 2
Developing CKPs
- Text structure
- Phrase "reach its peak" to describe variable's highest level
- Phrase "level off" to describe variable's stabilization

New CKPs
- Difference between "increase by" and "increase to"
- Meaning of "negligible"
- Phrase "come into use" to describe advent of new technology
- "Rose quickly" to describe sharp increase
- "Over the next XX years" and "at the same time" to describe timing of variable changes
Appendix C

CKPs Identified by Carol During Feedback Sessions 3 and 4

**Feedback Session 3**

- Address format
- Preposition "to" with verb "radiate"
- Verb "radiate" taking subject 'pain'
- "Worse" and "worsen" parts of speech
- Preposition "by" with verb "accompany"
- Preposition "to" with verb "confirm"
- Spelling of past tense of "complain"
- Spelling of present continuous form of "vomit"
- Use of lexeme "complain" to present a symptom
- Describing symptoms without implied volition

**Developing CKPs**

- New CKPs
  - "Regarding" being abbreviated to "Re"
  - Use of appropriate appellation for patient

**Feedback Session 4**

- Use of "deteriorate" to describe the worsening condition of a patient
- Phrase "any queries" instead of "need more information"
- Phrase "admitted to our hospital" instead of "first time appearance in our hospital"
- Valediction "yours sincerely"

**Developing CKPs**

- New CKPs
  - Use of date
  - Comma after patient name in subject line
  - Strategy of expressing gratitude in letter opening

Appendix D

CKPs Identified by Kazue During Feedback Sessions 3 and 4

Feedback Session 3
- Developing CKPs
  - Address format
  - "Worse" and "worsen" parts of speech
  - Preposition "by" with verb "accompany"
- New CKPs
  - Preposition "to" with verb "radiate"
  - Verb "radiate" taking subject "pain"
  - Being careful of using one verb when discussing two symptoms
  - Use of appropriate appellation for patient

Feedback Session 4
- Developing CKPs
  - Use of "deteriorate" to describe the worsening condition of a patient
  - "Any queries" instead of "need more information"
- New CKPs
  - Use of date
  - Comma after patient name in subject line
  - Colon required after "Re" (abbreviation of regarding)
  - Strategy of expressing gratitude in letter opening
  - Use of "relevant" to introduce applicable medical history