

TECHNOLOGY AND THE FOUR SKILLS

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Most L2 instructors implement their curriculum with an eye to improving the four skills: speaking, listening, reading, and writing. Absent in this vision of language are notions of pragmatic, sociolinguistic, and multicultural competencies. Although current linguistic theories posit a more complex, interactive, and integrated model of language, this review article points out where computer-assisted language learning (CALL) can contribute to L2 language growth in terms of these four skills, especially if carefully situated within a task-based language teaching (TBLT) framework. New technologies coupled with a TBLT goal-oriented approach ultimately push learners to combine speaking, listening, reading, and writing in ways that resemble more closely how they normally engage with the digital facets of their own lives.

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INTRODUCTION

Second language (L2) researchers tend to frame learning in terms of the opportunities to engage in interactions or to respond to communication breakdowns in ways that prime the language acquisition pump (Gass, 1997). However, language instructors in the trenches—when they evaluate the curricular design of any textbook, course materials, or computer program—attend to more traditional measures and ask if the four skills have been adequately addressed: speaking, listening, reading, and writing. Understandably, language instructors are primarily interested in the practical applications of any given technological tool or textbook, rather than the pursuit of an L2 research agenda. Within this context, computer-assisted language learning (CALL) programs and activities have drawn praise from all quarters for supporting online reading using multimedia glosses (for an excellent review of the literature on CALL glosses, see Chun, 2006) and stimulating cultural knowledge through authentic online materials and web quests, as has been well documented in the literature from the last two decades (e.g., Blake, 2013). CALL activities that support collaborative writing have also been examined carefully in the literature (Oskoz & Elola, 2014a). But instructors routinely voice serious doubts as to whether CALL activities can foster L2 speaking and listening development, preferring to believe that these activities are the exclusive domain of the classroom, where face-to-face language exchanges can occur. Even in the arena of computer-mediated communication (CMC), researchers have frequently emphasized the persistence of the text on the screen—which is to say, the act of reading—as one of the most important affordances offered by the computer (Kern, 2015). Nevertheless, videoconferencing contributes directly to improving L2 speech and is now being analyzed more closely by researchers for its benefits concerning L2 speech production.

In this review article, we will examine some of the advantages afforded by CALL with respect to the four skills and pay particular attention to speech production and listening comprehension, two areas where serious doubts about CALL's efficacy still linger among the profession's rank and file (Felix, 2008). Although not explicitly mentioned or specified, cultural knowledge is assumed to be an inherent part of these four skills. With these practical issues in mind, we will begin with a brief review of task-based language teaching (TBLT) as implemented within a technologically supported learning environment. We will first examine CALL in light of the more complex issues of speaking and listening, before moving on

to review the more familiar ground of CALL reading and writing.

TASK-BASED LANGUAGE TEACHING

The notion of *task* is central to implementing any language curriculum that addresses the four skills, whether in the classroom or online. What do instructors want their students to be able to do at the end of the course or lesson with respect to speaking, listening, reading, and writing? González-Lloret (2015) describes language tasks with a phrase taken from Dewey's (1938/1998) ideas on experiential learning: tasks represent *learning by doing*. Willis (1996) defines a language task as "a goal-oriented activity in which learners use language to achieve a real outcome" (p. 53). They can do this by solving a problem, doing a puzzle, analyzing a text or video from a particular genre, playing a game, or sharing and comparing experiences. Accordingly, language tasks involve communication that is meaning-oriented and as authentic as possible and goal-oriented so that the learners' performance can be directly evaluated according to how well the participants achieve the desired outcome.

More recently, Long (2014) has provided a TBLT framework in which he urges instructors (1) to conduct a needs analysis to identify target tasks that are important to their students, (2) to classify the target tasks into task-types, (3) to develop pedagogic tasks, and (4) to sequence the tasks to form a syllabus. In the process of choosing and sequencing tasks wisely, Robinson (2011) cautioned practitioners to select an appropriate level of complexity, which will vary according to the number of task elements, the task length, the allotted planning time, and the extent of the learners' prior knowledge about the topic. Skehan (2003) also has raised concerns that too much task complexity will adversely affect linguistic accuracy and fluency when performing the task. He categorized the best tasks as those that (a) are carefully structured with both a pre-planning and a post-task phase, (b) are organized around familiar information, (c) require analysis or justification, and (d) are interactive or dialogic in nature by virtue of asking the participants to work together (pp. 394–395).

Doughty and Long (2003), and then later, González-Lloret (2015), offer a series of suggestions on how to adapt the principles of task-based learning to the digital learning environment. González-Lloret gives a detailed account of how to design best practices for what she calls *technology-mediated TBLT*. Naturally, the affordances provided by any particular technological tool interact with the participants' digital knowledge and the nature of the task itself. In other words, using technology to "learn by doing" may not always be readily obvious or transparent; students must be trained how to use technology, even if the overall task is understandable. In some cases, it may not be possible to port directly to the technology-mediated learning environment every task that works well in the traditional face-to-face format. Hence, the field uses the term *affordances*, which refers to the special features and functions that a particular digital tool allows L2 learners to engage in. For instance, both tutorial CALL and asynchronous CMC tend to allow students more pre-planning time, which can enhance speaking accuracy, support more complexity, and possibly reduce frustration levels. Meanwhile, synchronous CMC often stimulates students to produce more utterances (Abrams, 2003) with a fluency that more closely mirrors the spontaneous turn-taking behavior found in real-world, face-to-face conversations.

TECHNOLOGY AND L2 SPEAKING

L2 speaking can be assisted by technology in two modes, tutorial CALL and CMC. While classroom instruction fundamentally fosters interactions and helps students to notice their gaps in L2 knowledge, tutorial CALL practice can facilitate memory storage of L2 phonemic and morphological contrasts as well as assist in lexical phrase retrieval. Even CALL programs that merely present electronic flash cards can be helpful if students also subvocalize when they are learning new words and phrases (Teixeira, 2015). Usually, these types of programs ask students to compare their own audio recordings with those of native-speakers of diverse accents. One obvious drawback of this type of exercise for improving L2 speech is the lack of any feedback. Here is where programs that offer some form of automatic speech recognition

(ASR) can play an important role.

ASR systems work best when applied to clearly circumscribed linguistic sub-domains or micro-worlds (e.g., learning words that only deal with the family or another specific semantic domain; phrases frequently used in public places such as banks, airports, pharmacies, etc.). Accordingly, the ASR system asks students to carry out specific tasks, such as individual sound practice, word recognition, or short sentence repetition (Ehsani & Knodt, 1998). Several commercially available programs provide ASR capabilities, such as Dragon Naturally Speaking or the Dragon Anywhere app from Nuance, and TeLL Me More, an algorithm that has recently been integrated into the Rosetta Stone online exercises. Progress has been made in this field, but ASR systems will still not give feedback as well as a person is able to do, which is why CMC tasks hold the promise of being able to provide a crucially important interactive component within the framework of a technologically-enhanced learning environment, as will be discussed later.

Dictation exercises can also be carried online via the Dragon software or other programs such as Online Dictation, Evernote, TalkTyper, VoiceAssistant, Speechlogger, or PaperPort. The Dragon app transcribes into the L2 the best guess as to what the learner actually said. When the Dragon L2 transcription contains errors, the learner knows that the pronunciation has deviated from the statistical norms programmed into this app. In turn, this obliges the user to analyze and restate the utterance in a more comprehensible way, thus providing a feedback loop along the lines of forced output as described by Swain (2000) and Swain and Lapkin (1998). When combined with explicit instruction on the L2 sound and grapheme equivalencies, such dictation activities stand to provide helpful practice for learners. Surprisingly, few CALL studies or practical applications have taken advantage of dictation software, despite the obvious affordances for enhancing L2 speaking. Clearly, the CALL field needs to look at these techniques more closely in the future.

Computer assisted pronunciation training has also received some attention in the field using the sophisticated PRAAT software tools, a program that goes well beyond the level of feedback that the Rosetta Stone algorithm offers. Chun (2002); O'Brien (2006); and Gorjian, Hayati, and Pourkhoni (2013) have all stressed the importance of linking pronunciation instruction with training on L2 intonation patterns as well. Again, practical implementations of this sort have been limited to date.

CMC tools, however, offer real speaking and human feedback opportunities either with other L2 learners or L1 speakers. For example, the online program VoiceThread allows users to create collaborative online stories illustrated with sound, images, and text from their respective world locations. When VoiceThread slides are shared online, the creators can allow anyone with the Internet address to add comments or answer questions posed by the project author, thereby enriching the entire task. The creator and the instructor can always maintain control over which comments are posted by choosing the *Moderate Comments* option under the publishing menu. In other words, VoiceThread permits the formation of learning groups at a distance, a form of asynchronous CMC with audio.

Many learning management systems (LMSs) now provide the ability to make video postings using a Flash plugin, another form of asynchronous CMC that promotes L2 speaking practice. Instructors can use this type of digital tool to allow students to post their best video recording through the LMS platform, which affords them increased planning time, thereby improving accuracy, increasing linguistic complexity, and promoting fluency (Guillén & Blake, in press)—provided that the tasks are well designed and do not overwhelm the students.

Today's language students also enjoy being producers of videos because they have at their fingertips a variety of digital video tools, which they routinely use to upload recordings to YouTube. Blake and Sh'iri (2012) described how first-year Arabic students at UC Berkeley demonstrated their speaking progress at the end of the term by publishing their audio-enhanced final project on YouTube. Several groups of students in this Arabic class opted for simple online illustrations as part of a storyboard with Arabic

captions; then they recorded a narrative voiceover together with background music (a sample can be found [here](#)). These easy-to-use techniques result in an impressive finale to a language course to the great satisfaction to both students and instructors alike and can be viewed by the entire class with an eye to providing feedback on L2 speaking.

Today's synchronous CMC tools, or what many call *videoconferencing* (e.g., Adobe Connect, Big Blue Button, Blackboard Collaborate, Skype, Google Hangout, Zoom), typically allow learners to exchange video, images, and text in real time and are at center stage with respect to fostering L2 speaking practice. Videoconferencing has become the norm for most telecollaboration projects (O'Dowd, 2007), tandem learning experiments (Guillén, 2014), and social media exchanges (Lin, Warschauer, & Blake, 2016). Likewise, synchronous speaking tasks regularly form part of the hybrid or fully online language curriculum (Blake, 2011). Once again, the choice of task is all-important and needs to be carefully thought through by the instructor so as to balance the conflicting needs of achieving more L2 accuracy, complexity, and fluency (Hampel, 2006). Videoconferencing gives students an alternative to the type of speaking practice that is assumed to occur solely in the classroom. In actual fact, small group videoconferencing—for example, one instructor working with two or three students—can often evoke a more intensive speaking experience than sitting in class and responding only two or three times in an hour, which is the norm in most language classrooms. Naturally, the instructor must prepare the conversational tasks ahead of time so that the students know exactly what to expect and be primed with the appropriate vocabulary and grammar needed to successfully bring the task to completion. Some videoconference applications even allow recording of these synchronous conversations, which can be reviewed later for self-evaluations or peer and teacher feedback. In this way, students can gradually build up greater fluency and smoother discourse transitions, which are important components of speaking proficiency.

Speaking progress via videoconference usage, however, has not been well studied to date, partly because defining the construct of *speaking proficiency* remains a difficult proposition (Hulstijn, 2011), whether in the face-to-face or CALL context. Hulstijn (2015) has recently suggested that L2 assessment should be divided into *basic linguistic proficiency* and *extended or academic linguistic proficiency*, a dichotomy that might help to guide CALL researchers in the future when measuring L2 speaking progress. In Hulstijn's (2015) framework, an L2 student could have a well-developed sense of extended proficiency without ever having mastered some of the core elements of basic linguistic proficiency, such as correct pronunciation or appropriate intonation or the pragmatics of sarcasm. At present, the widely used oral proficiency interview scale mixes characteristics from both the basic and the extended proficiency domains as part of the rating system (Blake, 2016a).

Whatever the evaluation framework used to study synchronous CMC exchanges, it should not be inferred that videoconferences can be carried out just like face-to-face conversations. After all, with CMC exchanges the computer and the computer screen mediate the entire communication experience. Ware (2005) and Ware and Kramsch (2005)—and more recently Kern (2015)—have convincingly warned the profession that the interface profoundly affects the conversational dynamics. Students and instructors alike need CMC training to help to avoid, or at least come to understand better, any intercultural miscommunications that might occur as a by-product of using the computer medium. As always, well-designed tasks improve student outcomes by promoting successful and satisfying online exchanges—videoconferencing being no exception.

TECHNOLOGY AND L2 LISTENING

Much of what is presented here on the topic of listening draws from what Hubbard (in press) has addressed more thoroughly in his article on CALL and listening. We agree completely with Hubbard's assertion that the explosion of native-speaker authored content on the web has been the most significant recent change for listening practice. This is a direct result of the rise to prominence of the Internet where

L1 speakers routinely author materials for other members of that same speech community, providing an emic representation of their respective cultures (Blake, 2013). YouTube in particular, provides an unending source of authentic materials of varied genres that can be shaped into individual playlists under the control of the instructor. However, this public video collection puts a heavy burden on the instructor who needs to frame these materials linguistically and culturally in ways that will be meaningful for L2 learners. Without pre-listening help, the Internet's rich multimedia materials, aimed at other L1 speakers of that language, will most probably overwhelm the L2 learners. Once again, the nature of the tasks designed around these YouTube materials is critical for successful comprehension. These authentic online materials contain high amounts of "flavorful" language (e.g., collocations, sayings, idioms, innuendos, humor, and sarcasm), something about which learners typically have a limited understanding given the incomplete language exposure inherently supplied by the classroom environment.

Instructors should carefully craft their curricular tasks around these online materials so as to address their students' linguistic difficulties as well as the content complexities. Pre-listening activities are a *sine qua non* in order to frame authentic videos with the necessary cultural background and, in turn, deal with the illocutionary intent of the authors. Pragmatic considerations (something almost never taught in the first or even the second year of instruction) also deserve explicit attention when preparing students to listen to authentic videos. Fortunately, there are CALL programs that allow instructors to annotate YouTube materials in order to create exciting online listening activities, such as [Zaption](#) or [Thinglink](#) (the premium version of which allows annotations for videos as well as images). These programs allow users to annotate YouTube videos with questions, comments, and comprehension checks. More elaborate online listening activities can be designed from scratch with authoring systems such as Adobe Captivate, but the learning curve for the instructor is considerably higher. As always, instructors carry the burden of deciding how students will use these materials: which words are to be glossed, what cultural information is essential to understanding the video, which pragmatic and sociolinguistic considerations are assumed to be common knowledge for the listener, and, most importantly, what follow-up activities can be generated beyond the mere act of aural comprehension so as to continue to put into practice the specific language routines learned during the listening activities. Obviously, the intent in this pedagogical approach is to lead the L2 learners through the reiterative processing stages of comprehended (not just comprehensible) input, intake, uptake, and finally, output (Gass, 1997).

In preparing YouTube materials, target-language captions can be easily added to the viewing screen. While captioning might blur for the researcher the division between listening and reading skills, Borrás and Lafayette (1994) have shown that simultaneous L2 captioning results in better listening comprehension and better subsequent performance on related speaking tasks—what Plass and Jones (2005) subsequently dubbed the act of *dual processing*. In a more recent study of video captioning, Winke, Gass, and Sydorenko (2010) confirmed the positive vocabulary and comprehension effect for L2 captioning with Arabic, Chinese, Spanish, and Russian learners.

Other technological options abound for preparing listening activities. For example, Cárdenas-Claros and Gruba (2012) mention the use of captions, transcripts, input enhancement (e.g., fonts, size, and color; also see Chapelle, 2003), electronic glossaries, links to dictionaries, or speed control for slowing the speech rate. The research on each of these different options remains scarce and, at best, has yielded mixed results. Much depends on the proficiency level of each individual learner in question, as well as a myriad of other individual factors that routinely plague and confound the evaluation of L2 learners' development (Blake, 2016a). Clearly, more CALL listening research is in order with respect to determining the optimum conditions for stimulating listening comprehension. Likewise, instructors rarely know how to package authentic materials in order to create effective listening activities for their students. Students need practice on the vocabulary of the selection they are about to hear as well as background information or brainstorming about the topic at hand, which may be completely outside their own life experiences. In addition, they need to receive continuous training if they are to take advantage of the changing array of

affordances offered by these new technologies. New technological features are not intuitively clear, even to the younger generation of students.

In the future, we can expect technological innovations that will allow us to stop captioned videos at will by simply clicking on the captioned words so as to link directly to dictionary glosses. Glossing has been a standard feature of CALL reading research and practice, but not much exploited in listening activities. Students need training too in how to use these features. Jin and Deifell (2013) reported that only 21.3% of students in their study used the L2 glosses for listening as opposed to 73.9% for reading.

While YouTube and web pages have been the focus for most of this section, Hubbard (in press) also mentions content curation, the collection of enriched media for the learner organized by topic, language level, and other features. As with a museum, a media collection hosts videos in categorized groups and sequences, often accompanied by pedagogical support. Examples of curated collections are Brigham Young University's [Arclite Project](#), Berkeley Language Center's [Library of Foreign Language Film Clips](#), [ELEclips](#) for Spanish, or [CLILstore](#), a multilingual media project funded by the European Union.

Clearly, the options for L2 listening practice that give the L2 learner considerable autonomy abound and are limited only by the instructor's knowledge of how to put together sound pedagogical tasks to accompany the videos. In a TBLT approach, the linguistic level of the videos can be higher than what the learner can produce, but the task can be fitted to correspond to their learner's present abilities. As always, the learners themselves need to receive training on how to study on their own with these materials, which is the message that the proponents of learner autonomy have been trying to get across to the profession for some time now (Guillén, 2014; Schwienhorst, 2008).

TECHNOLOGY AND L2 READING

Text-based reading has been a constant on the web, even with the recent multimedia versions of Web 2.0 that enhance pages with images, sounds, and video clips. Godwin-Jones (2015) rightly points out "Much of the activity in globalized online spaces is within genres that are exclusively or primarily text-based" (p. 11). Accordingly, L2 reading has been the skill that CALL research and practice has consistently highlighted. In fact, one of the most frequently mentioned CALL advantages—both with respect to tutorial CALL and CMC—has been the notion of *textual persistence*, because the text preserved on the computer screen permits L2 learners more time to process unfamiliar linguistic structures (Payne, 2004).

With specific reference to reading skills, CALL researchers have focused in the main on the effects of glossing or dictionary lookups within a computer-supported or mobile-assisted environment. [Lingua.ly](#), a commercially available online glossing program, provides definitions with audio for French, English, Spanish, German, Arabic, Hebrew, Italian, Dutch, Russian, and Portuguese. Users double-click on any word on any web page to look up words using a special plugin available for the Chrome browser.

Knight (1994) and Karp (2002) carried out some of the earliest vocabulary studies, in which they reported that L2 students preferred to access simple definitions in their L1, rather than spending time making sense of hints, multimedia glosses, or other deep processing strategies. Later, Chun (2006) corroborated these student preferences for using simple glosses as a way to finish the reading assignments in a timely manner. However, preferences are one thing, reading comprehension is another. Neither of these previously mentioned studies evaluated the learners' reading comprehension or processing strategies. Chun (2006)—after completing a series of studies (see Chun & Plass, 1996)—showed that vocabulary is best remembered when learners also receive a picture or video gloss in addition to the translations of unfamiliar words. Yanguas (2009) has confirmed the positive effects for combined glosses (i.e., text and picture) with respect to vocabulary recognition and, more importantly, has also found a positive effect for reading comprehension.

The results from Yanguas (2009) are significant for reading research because they separate vocabulary

development from reading comprehension. Before that, both Grabe (2004) and Chun (2006) had pointed out the crucial distinction between learning new L2 vocabulary and the development of word recognition fluency or automaticity, the latter being a requisite for developing reading skills. In other words, no one doubts that explicit multimedia CALL instruction benefits L2 lexical growth (Arispe, 2012), but fluent reading skills are impacted by a number of complicated factors—in particular, L1 reading levels, L2 language proficiency, and background knowledge of the reading topic in question. Although the first two factors are out of the instructor's control, topical knowledge can easily be addressed through the use of advance organizers. Chun (2006) has counseled teachers to include a large battery of pre-reading activities in order to prime students for what they will encounter working autonomously with CALL reading activities. This is excellent advice, which once again leads the instructor into following a TBLT approach for CALL reading.

Kern (2014, 2015) has argued, most convincingly, that reading (and writing) on the Internet involves a new type of mediation by the computer, which necessarily changes the nature of this activity in both subtle and not-so-subtle ways. For instance, most students today use Wikipedia as their sole reading source (Godwin-Jones, 2015), which is clearly not a good thing when one of the goals of L2 learning is to develop critical thinking along with a more multilingual identity. With specific reference to the four skills, Allen (2003) and Blyth (2014) have argued that the lines between reading and writing are being further blurred by Web 2.0 since users can comment or elaborate on someone else's written entries, thereby creating a practice of collaborative reading and writing—what Allen (2003) calls *wreading*. Blyth (2014) refers to this interactive reading activity as *digital social reading* and he employs eComma software to allow L2 learners to share the cognitive load of interpreting foreign language texts. Godwin-Jones (2015) notes that there are a number of digital services that facilitate this type of social reading online, in addition to the standard array of blogging tools: for example, Goodreads, Ponder, and LibraryThing. In other words, reading online no longer needs to be a static, solitary activity, but can also entail collaborative digital writing, the last skill to be analyzed here.

TECHNOLOGY AND L2 WRITING

At the outset of this article, we noted that language teachers have always recognized the usefulness of the computer for reading and writing. For many instructors and students alike, writing offline on the computer is the only way to compose a text of any significant length. With respect to online writing, the Internet facilitates collaborative writing via electronic discussion forums, blogs, wikis, shared documents (e.g., Google docs), and an array of writing tools available within today's LMS platforms—not to mention Twitter or Facebook for shorter text entries. Oskoz and Elola (2014a) and Kessler, Bikowski, and Boggs (2012) have extolled the virtues of using social digital tools as part of a multimodal and staged approach to collaborative writing.

Over the last decade, the CALL field has seen a veritable explosion of studies dealing with social CALL and CMC writing, although this form of textual exchange reflects and reinforces language characteristics very similar to those of oral speech (Payne & Whitney, 2002). Despite the close associations with the language of oral registers, CMC constitutes a form of writing, nonetheless. The study by Kern (1995) perhaps marked the first important CMC study documenting that L2 learners wrote more turns when using the Daedalus Exchange networked software than those students talking face-to-face. His study was followed by a spate of articles that primarily focused on CMC as a vehicle for carrying out negotiations of meaning from an interactionist perspective (Blake, 2000, 2016b; for an excellent review of synchronous CMC studies from this period, see Sauro, 2011). Within a sociocultural framework, CMC continues to provide a forum for students to engage in telecollaborations with native speakers at a distance, with all of the multicultural challenges or misunderstandings that might arise during these written exchanges (Belz, 2002; Lomicka, 2006; O'Dowd, 2006, 2007; Ware, 2005; Ware & Kramsch, 2005). Academic writing, nonetheless, is usually thought of as something separate from these CMC exchanges.

The act of both personal and collaborative academic writing, whether mediated by the computer or not, should ideally involve an iterative or staged process that constantly recycles analysis, design, development, implementation, and evaluation (Caws, 2012). Obviously, CMC tools can be used to foster collaborate work and feedback at these various stages of the writing process, as the study by Oskoz and Elola (2014a) illustrated. Writers, whether in their L1 or L2, seek to produce texts that are coherent, well-organized, rich in content (including a critical sense of multicultural knowledge in the case of L2 writing), appropriate with respect to rhetorical and genre conventions, and accurate with respect to linguistic and pragmatic norms. Clearly, these goals are a moving target where frequent revisions and rewritings are part and parcel of the process. Any digital tool that helps L2 learners engage in the reediting process is bound to produce improvements over the long run, as long as learners are engaged in this iterative design process. A blog puts more emphasis on personal writing with the occasional reactions from other readers, while wikis or Google docs facilitate a more collaborative product. Today's digital tools combine aspects of writing and reading, as we have already commented above, while also creating a sense of audience. This, in turn, tends to stimulate more effort, if not better writing, from L2 participants (Yoon, 2008; Oskoz & Elola, 2014b).

Certain CALL tools and strategies can be particularly helpful for L2 writers, starting with a mention of corpus tools and concordances (Yoon, 2008). Vocabulary size, no doubt, impacts all L2 performance with respect to the four skills and, clearly takes considerable time to grow (Cobb, 2007). Corpus tools and concordances, however, can fine-tune word usage at any stage of L2 development, especially during the revision stages of writing (Gaskell & Cobb, 2004). Godwin-Jones (2015) recommends the multilingual corpora offered by [Linguee](#) as an immediate way to improve L2 writing. However, using a corpus such as [Linguee](#) to this end is not readily intuitive to students; they must be trained how to use a corpus to search for the correct lexical phrasing and, in the process, find the frequent collocations that will imbue their L2 writing with a more authentic feel. For example, following a TBLT approach, the instructor can ask groups of students to investigate via [Linguee](#) which prepositions go with a particular list of verbs—one of the peskiest grammatical problems when writing in a foreign language because of its idiosyncratic nature. When it comes to finding the appropriate L2 collocations, [Linguee](#) is a goldmine, but it takes a bit of extra searching to squeeze out valuable linguistic information.

Another context where Web 2.0 tools benefit L2 writing comes from asking learners to create digital stories. Oskoz and Elola (2014b) had their students explore storytelling by using iMovie or FinalCut. Their students used a variety of digital tools to plan and revise the plot, the script, and the staging details for their stories—an excellent example of learning by doing. The end product was both a multimedia and literary (i.e., scripted) artifact—or in the researchers' own words, an instantiation of 21st century writing—which respected the conventions of this genre. The final products were published on YouTube, which allowed the rest of the class to read and view the projects and reflect further on content, form, and L2 language usage.

Sauro (2014) explored the genre of fanfiction—online networks of fans of books, movies, or musical bands (e.g., the *Sherlock* television series, *Harry Potter* books, *Sakura* manga and anime)—to engage her L2 students in reading and writing. To her mind, the goal-oriented and highly social activity of fandom more closely resembles what students are actually doing in real life, which gives the class activity more meaning and personal investment. All the while within the fandom task, students are problem-solving and negotiating new L2 multicultural spaces. Jenkins (2006) has defined a fan as someone who transforms viewing into a cultural activity as part of a community with others who share a common interest. Consequently, fandom reading sparks writing and sharing, stimulating more reading, writing, and sharing in an ongoing cycle. Popular topics, such as the *Harry Potter* series, have spawned multilingual fandoms with production details, commentaries from the producers and actors, and podcasts along with new digital tools that facilitate the interactions among fans (e.g., [Fiction Alley](#); [Memory Alpha](#); [Viki](#); [Subtitle Creator](#)). Fandom foreign language participants often translate or subtitle a series before the official

versions are released, generating a sophisticated linguistic effort from the fans and a model exercise for the L2 classroom.

In an earlier study with a sociocultural framework, Lam (2000) has provided a case study of how transnational CMC communities can facilitate L2 writing in English. CMC interactions in a L2 not only foster the development of multicultural identities, but also allow individuals to construct their own textual voice and choose their own social roles. Lam viewed the process of constructing a new L2 community as a metaphor for CMC. Through the CMC exchanges in this transnational group, the focal student encountered and then learned to use multiple forms of textual discourse: advertising talk, business talk, teen talk, pop culture talk, emotional advice, and religious sharing. The CMC community gave this student a sense of belonging to the English-speaking world. In short, CMC writing in L2 holds out the promise of doing much more than stringing words together; it's a way of finding your *third place* (i.e., neither an L1 nor an L2 identity, but rather a bilingual identity) in a multicultural world (Kramsch, 2009).

CONCLUSIONS

Categorizing linguistic knowledge into four skills might be simplistic, given the current state of linguistic theories (Guikema & Williams, 2014). After all, phonetic segments are now analyzed as part of larger articulatory gestures. Lexical choices have become filters or constraints that determine syntactic constructions. Corpus data mining is now preferred over positing trees diagrams. Individual words combine with other words in probabilistic ways to form collocations, rather than being freely inserted into deep structures. Competence is no longer just grammatical but also communicative (Hymes, 1974), symbolic (Kramsch, 2009), and relational (Kern, 2014), ruled by pragmatic, sociolinguistic, and cultural considerations. Accordingly, measuring language proficiency and L2 development resists being reduced into a simple set of discrete categories such as speaking, listening, reading, and writing. Just as the various linguistic subsystems are now recognized as being interactive, theories about L2 learning are primarily interactionist (Gass, 1997) and, therefore, the concomitant learning processes mutually influence one another. Our evaluation measures, however, have not yet caught up with these new insights and language models. Hulstijn (2011, 2015) argues that speaking, listening, reading, and writing are not self-contained proficiency modules that can be adequately evaluated in isolation, although the profession still demands it.

Not surprisingly, the practice of CALL itself no longer deals with digital writing as separate from reading, nor implements speaking practice in isolation from listening. And, again, as the sociocultural theorists would remind us, none of these activities should be separated from the notion of multicultural competence and the construction of a bilingual identity—what Kramsch (2009) has called finding the third place vis-à-vis the L1 and the L2. The TBLT approach implicitly seems to recognize this more integrated view of language, even when particular grammatical structures are being targeted. TBLT language practice—assisted by CALL or not—springs from the users' needs, goals, language use, and reflections. In most cases, TBLT results in a tangible outcome or product with the emphasis always on creating or understanding meaning. In this review, we have tried to pick out the most salient aspects of speaking, listening, reading, and writing, pretending as it were, that these modalities function autonomously. Quite naturally, instructors continue to think in these terms when putting together a language curriculum, but making the effort to construct sound TBLT activities will help to shift the focus to a more integrated implementation of L2 learning with an impressive array of CALL tools standing at ready to help.

CALL is now framed in a much more multimodal context where learners enjoy greater agency and autonomy to produce language through digital forms. Speaking tasks will now involve listening and writing as well, as students produce and post their videos. Listening will entail reading captions, linking to glosses, and reflecting on cultural differences; and writing will be carried out in stages that leverage collaborative chatting, wikis, videoconferencing, and repeated negotiations of their multicultural competence and linguistic proficiency. For language instructors, then, CALL may represent a *Brave New*

World, not without its conundrums and perils (Kern, 2014), but an environment well worth taking advantage of its affordances for L2 learning.

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