Chapter 9
Technology in Classroom L2 Writing Assessment and Feedback

Introduction

In this information age, technology has permeated almost every corner of the world. Young people are technology savvy and are no longer contented with learning that solely uses the pen and paper and is confined by the four walls of the classroom. eLearning has, as a result, experienced unprecedented expansion in education in recent years. In writing, the use of technology is in consonance with the new literacy movement (Barton 1994; Barton et al. 2000; Gee 2008; Street 2003, 2004), which enlarges our understanding of literacy as a set of cognitive skills situated in the minds of individuals, to literacy events with specific social goals in different social contexts. To be literate in the globalized world, students need to "possess multiple print and computer literacies" (Bloch 2008, p. 12) and be able to read and write in the digital environment (Warschauer et al. 2013). The advent of technology has therefore opened up new possibilities for classroom writing assessment and feedback.

This chapter begins with a brief discussion of several technology-enhanced writing tasks particularly suited for the formative aspect of classroom assessment in L2 school contexts – digital storytelling, blog-based writing, and collaborative writing on wikis. Then the rest of the chapter examines the role of technology in teacher evaluation, peer evaluation, and self-evaluation of student writing. Finally, using the Writing ePlatform developed by the Hong Kong Education Bureau as a tool for promoting assessment for/as learning (AfL/AaL) in writing among schoolchildren, I illustrate how technology can be used to enhance student learning in L2 school writing contexts.

The original version of this chapter was revised. An erratum to this chapter can be found at https://doi.org/10.1007/978-981-10-3924-9_11

I. Lee, *Classroom Writing Assessment and Feedback in L2 School Contexts*,
DOI 10.1007/978-981-10-3924-9_9

Technology-Enhanced Tasks for Classroom Writing Assessment

In classroom writing assessment, the most traditional kind of writing task is paper based. In the digital age, the notion of literacy has been expanded to include multimedia literacies (Coiro et al. 2008). With the help of technology, students can employ digital media to produce their writing (Hafner 2013). They can write with the computer (e.g., word process instead of handwrite their essays) and compose their writing online (e.g., on blogs and wikis). They can produce digital compositions, "using language in combination with other semiotic resources for communication, entering into relationships with new kinds of audiences" (Hafner 2013, p. 830). In other words, technology-enhanced writing tasks involve both technical and social elements – the former mainly using Web 2.0 and the latter involving a broader understanding of the role of audience in writing. With social networking, online publishing can provide a powerful source of incentives for writing. Digital compositions, for example, can be read not only by the teacher and peers but also online audiences. In this section, I introduce three technology-enhanced tasks for classroom writing assessment which are suited for L2 school learners: digital storytelling, blogging, and collaborative wiki writing.

Digital Storytelling

Digital storytelling allows students to work individually or in small groups to produce a digital project that combines writing, digital images, and digital video (Hafner and Miller 2011). A digital story is a personal narrative (about a personal experience or personal reflection on a topic) presented orally in the first person and combined with multimedia like photos, music, and other sounds (Banaszewski 2005; Brenner 2014; Bull and Kajder 2004; Lambert 2006, 2009; Ohler 2008).

In the traditional writing classroom, students produce stories with a structure that includes orientation, complication, resolution, and coda (which is an optional element of story structure). In the digital writing classroom, students can produce digital stories with similar elements (Ohler 2006), beginning with background information that sets the scene for the story. Then the narrator is confronted with a problem or complication, followed by some sort of life-changing experience or self-discovery, which serves as a resolution to the problem. The digital story usually ends with a personal reflection which is thought provoking and meaningful. The digital images and video, together with the first-person narration, are able to create an enhanced effect on the audience.

For L2 school learners, a range of other genres can be used for digital storytelling. For example, students can create a digital recount of an important event, such as the 50th anniversary of their school, a memorable overseas trip, or a meaningful volunteering experience. Alternatively, students can produce a creative story using

the digital format, combining the story with multimedia – e.g., the twenty-first century Cinderella. Students can also produce a critique of a social issue (e.g., teen pregnancy, cyberbullying, and domestic violence) and express their personal thoughts on the topic in a digital story. Below I share two digital stories produced by two primary students[1]:

- A recount (Trip to Tung Chung) by a Grade 2 student in Hong Kong: https://youtu.be/AeazOaU192E
- A creative story (Little lion learning mathematics) by a Grade 3 student in Hong Kong (illustrations by the student himself): https://youtu.be/xMHSE-qZnBs

Peer/self-assessment can be incorporated at different stages of the digital storytelling process. At the scriptwriting stage, students can review each other's storyboards and help their peers improve the writing; they can also offer suggestions about the images or pictures chosen. Before narrating the stories, they can do rehearsals of the narration in pairs or small groups and help one another improve the input before they start recording the narration for their digital stories. Students can also engage in self-assessment. For example, students can narrate the script one sentence at a time or narrate the whole story in one go, and they can listen to the recording any time they like. If they are not happy with the quality of the narration, they can always redo it. Hence, self-assessment takes place, sometimes without being students themselves being conscious of it. To facilitate self-assessment, teachers should let students have the success criteria/learning goals in advance so that they can assess their own performance based on the same criteria/goals (see evaluation form in Example 9.1). Using the same criteria, students can review their peers' products and engage in peer feedback. Thus, AfL/AaL can be integrated into digital storytelling, during which students are actively involved in the learning and assessment process.

Example 9.1 Digital Storytelling Evaluation Form

Evaluating Digital Stories					
4 = Excellent					
3 = Good					
2 = Satisfactory					
1 = Needs improvement					
	4	**3**	**2**	**1**	**Remarks**
Content and Planning					
Original and absorbing story					
Well-structured story					
Well-paced narration					
Well-developed personal point of view					
Quality of Language					

[1] I would like to thank my son (Gareth Chan) and Harold Au for allowing me to use their digital stories in this chapter.

Accurate and appropriate use of grammatical structures					
Accurate and appropriate choice of words					
Speaking Performance					
Accurate pronunciation					
Appropriate stress and intonation					
Powerful and expressive vocal delivery					
Digital Literacy and Style					
Effective use of visuals to complement the storytelling					
Effective use of sound to complement the storytelling					
Overall comments:					

See Cheung and Lee (2013) for a discussion of the evaluation of digital stories

The benefits of digital storytelling are manifold. Since younger people are living in a "digital-media-saturated" (Brenner 2014, p. 22) age, technology use in classroom writing is likely to motivate and engage them. When students create digital stories, they practice integrated language skills: they read and write the script, paying attention to the use of grammar and vocabulary, and they speak and listen as they work on the narration (Brenner 2014). As students set out to research for relevant data for their digital stories, gather information and images, photos, music, etc. to complete the task, they not only develop their writing skills but also enhance their information and digital literacy (Cheung and Lee 2013).

Recent research on digital storytelling has shown that this technology-enhanced writing task could improve student motivation and language skills (Alameen 2011; Brenner 2014; Pardo 2014; Sevilla-Pavón 2015). In particular, research with school learners (e.g., Angay-Crowder et al. 2013; Castañeda 2013; Emert 2013; Honeyford 2013; Hur and Suh 2012; Thanabalan et al. 2015; Yang and Wu 2012) has shown that digital storytelling can "expand literacy repertories and means of expression" (Angay-Crowder et al. 2013, p. 43), engage students in authentic communication, and enhance critical thinking.

One of the best things about digital stories is that they are relatively easy to produce. Students only need to download a free, user-friendly software such as Photo Story 3 or Movie Maker. I have organized digital storytelling competitions for secondary students in Hong Kong, and local teachers' experiences show that digital storytelling can be fun, easy to organize, and rewarding. Cheung and Lee (2013) provide a clear, step-by-step guide on how students can be helped to create digital stories with Microsoft Photo Story 3. Also see Bull and Kajder (2004), Kajder et al. (2005), Martinez-Alba (2014), Pardo (2014), and Robin (2008) for useful steps and strategies for digital storytelling.

Blog-Based Writing

Blogs (weblogs) are websites that can be easily created and updated without any specialized knowledge of HTML programming. Typically a blog comprises entries which are presented in reverse chronological order on a single page (Bartlett-Bragg 2003). Since blogs are easily set up, user-friendly, and readily accessible, they provide a useful tool for developing student writing. Notably, blogs can be used as an alternative to paper-based journal writing. With just a click of the comment function button, students can post comments and communicate with the blogger, whereby authentic communication is facilitated (Arena 2008; Godwin-Jones 2003; Murray and Hourigan 2008; Richardson 2006; Ward 2004). Blogging platforms that may suit L2 school learners include WordPress, Blogspot, and Blogger.

In L2 school contexts, blog-based writing is a useful formative writing assessment tool that teachers can use to give feedback to students, to encourage peer feedback, and to guide their own instruction. Teachers can create a class blog and encourage students to upload entries and post comments on a regular basis. Through students' ongoing blog-based writing, teachers can help students develop fluency and build confidence in writing; they can also offer feedback to students and help them understand their strengths and major weaknesses in writing, on which further instruction can be based. Specifically, the class blog can serve as a platform to promote a sense of community among members of the class and to provide a collaborative space for discussion, exchange of ideas, peer evaluation, and self-reflection (Campbell 2003); it can also promote problem-solving and higher-order thinking skills (Murray and Hourigan 2008). Aside from a class blog, students can keep an individual learner blog, which is an online journal that students can update on an ongoing basis (Campbell 2003). Such blog-based writing can foster students' fluency in writing and develop their creative voice (Murray and Hourigan 2008). Students can read their peers' blogs, post comments, and interact with one another on a regular basis.

Research on blog-based writing has demonstrated various benefits. Blogs can develop a reflective learning culture through meaning making and social interaction (Oravec 2002, 2003). They can be used for establishing goals and common vision within a group and are particularly useful for promoting a collaborative culture and a sense of community (Miceli et al. 2010; Slavin 1989). Through blogging, students can actively engage in conversations with their classmates and connect to contexts beyond the classroom (Du and Wagner 2007). Blogging can also enhance learners' writing performance and promote learner autonomy (Bhattacharya and Chauhan 2010; Sun 2010); it can provide students with a larger audience for their writing, "erase the limitation of classroom walls" (Chen et al. 2011, p. E1), and is found to support student's emergent literacy development (Gebhard and Harman 2011).

Below are examples of class blogs run by some primary and secondary English teachers in Hong Kong[2]:

- A Grade 5 class blog documenting students' writing on "Eating out" and "Fables": http://pkps5d.blogspot.hk/
- A Grade 5–6 class blog that showcases students' "wonderful writing": http://pkps6a.blogspot.hk/
- A Grade 9 class blog that includes entries by both teacher and students: http://3cdynamic.blogspot.hk/?m=0

Collaborative Writing on Wikis

In addition to blogs, wikis are another Web 2.0 tool commonly used in L2 writing. While blogs put an emphasis on authorial voice and text ownership, wikis provide a platform for collaborative writing where students can alter the posted material by modifying content on the wiki page or adding new wiki pages. The best known example is Wikipedia, which is a jointly produced wiki and an online encyclopedia. Common wiki sites include PBWiki (https://my.pbworks.com/) and Wikispaces (https://www.wikispaces.com/).

Like blogs, wikis do not require specialized technical knowledge; they are a user-friendly tool that allows asynchronous communication. Students can work collaboratively in small groups to create wiki projects. Editing on wikis can be performed easily and restricted to members with a password. The history log of a wiki enables users to keep track of the history of members' contributions and edits, while the discussion space allows users to post comments and engage in discussion.

Of the limited research on wikis in L2 contexts (see Storch 2013 for a review), the large majority of studies are conducted with tertiary students (Kost 2011; Li 2013; Li and Zhu 2013; Li and Kim 2016) with findings primarily showing that students are positive about using wikis in the writing classroom. A small number of studies have investigated the use of wikis with L2 school learners (e.g., Lund 2008; Mak and Coniam 2008; Woo et al. 2011). Through working collaboratively with wikis in Hong Kong secondary classrooms, students found the writing experience more authentic and engaging, compared with traditional writing, and they were able to produce longer and more coherent texts collaboratively on wikis (Mak and Coniam 2008). Also conducted in Hong Kong, the study by Woo et al. (2011) showed that even Grade 5 primary learners could be receptive to the use of wikis. Students were found to enjoy using wikis and believed that the tool could help them write better and work collaboratively with their peers.

Like blog-based writing, wiki writing can serve as a useful tool for formative writing assessment of writing, lending itself readily to peer evaluation in particular.

[2] I would like to thank the two teachers (Kevin Wong and Ada Lam) who allowed me to refer to their class blogs in this chapter.

Based on students' collaborative wiki writing and peer evaluation, teachers can provide formative feedback and fine tune their writing instruction according to student needs. Below are two examples of secondary students' collaborative wiki writing:

- Wiki writing among Grade 7 students in a secondary school in Hong Kong: Spyc1a.pbwiki.com (as cited in Mak and Coniam 2008, p. 440)
- US-based High School Online Collaborative Writing project: http://schools.wikia.com/wiki/Main_Page

Technology and Teacher Evaluation of Student Writing

Responding to student writing is mind-numbing and time-consuming, and the effectiveness of teacher feedback has always been called into question. So might technology help by replacing the teacher or assisting the teacher in enhancing the effectiveness of feedback? In this section I explore and evaluate automated writing evaluation and screencast feedback as possible tools for enhancing teacher evaluation of student writing in L2 school contexts.

Automated Writing Evaluation

Writing assessment that relies on technology is referred to as automated writing evaluation (AWE), also known as automated essay evaluation or automated essay scoring (Deane 2013). AWE is defined as the evaluation and scoring of writing via computer programs (Shermis and Burnstein 2003). Instead of relying on the human rater, AWE uses the machine to generate electronic feedback in the form of scores and/or comments on content, organization, and/or language use. AWE was originally applied in standardized writing assessment in the 1960s (Page 2003), though more recently it has made its inroads into classroom writing assessment that serves formative purposes. Commercially available AWE programs that are designed for classroom use, such as *Criterion*, *My Access!*, and *Grammarly*, are some of the most common AWE[3] tools used in L2 contexts (see Warschauer and Ware 2006, for a detailed account of the commonly used AWE programs). Given the escalating numbers of L2 students (both ESL and EFL) around the world, there is a compelling need to find ways to provide timely, useful, and effective feedback on student writing, particularly in large classes.

Research on AWE is relatively sparse and has failed to yield conclusive evidence about the effectiveness of AWE in classroom writing assessment. Stevenson and Phakiti (2014) have conducted a review of 33 empirical studies that use AWE for

[3] AWE programs were not originally designed for L2 learners, though AWE programs are mostly marketed for the L2 student population.

formative writing evaluation, shedding light on the role of AWE in classroom writing assessment. Worthy of attention is that the majority of AWE research has been conducted in college/university contexts, with much less work done in the secondary context and even less in the elementary context. Also, AWE is most commonly used in the USA (the companies involved in the development of AWE are based in the USA), though AWE research has also been carried out in the Asian context (Lavolette et al. 2015; Liao 2016; Warden and Chen 1995). Most of the studies have investigated the effects of AWE on the written product, while some have focused on the writing process and students' perceptions of AWE. The body of research on AWE is small and the results are mixed. All in all, there is evidence to show that AWE can improve student writing outcomes, for example, as manifested in reduced error rates (e.g., El Ebyary and Windeatt 2010; Franzke et al. 2005; Lavolette et al. 2015; Liao 2016; Shermis et al. 2008; Warden and Chen 1995). Research that compares machine feedback with teacher feedback has not produced conclusive findings, but definitely there is no evidence to show that the machine can take the place of the human teacher. Just as feedback research in general has shown that teacher feedback can lead to improvement in revision rather than students' general writing development, as found by Stevenson and Phakiti (2014), there is only "modest evidence" (p. 62) about the positive effects of AWE on the quality of student text (upon revision) that has received AWE, rather than on general writing proficiency. Overall, while AWE has obvious advantages, like giving fast, instantaneous, and individualized feedback, and particularly useful for providing corrective feedback (Li et al. 2015), it may not be reliable in generating feedback on content and rhetorical issues (Warschauer and Grimes 2008). Although AWE is limited by its "insufficient coverage of the writing construct" (Shermis et al. 2013, p. 10), teachers can still employ automated methods to maximize student learning. For example, they can ask students to submit their first drafts to the AWE system for feedback on language, and after students have made their revisions, teachers can deliver feedback on areas not covered by AWE.

Opponents contend that AWE reduces writing to a technical and acultural act (Surma 2016) and that since writing is a social and contextualized activity, student writing is best evaluated by the human teacher rather than a machine (Deane 2013). This may be especially true in school contexts as younger learners (particularly elementary learners) are generally more eager to establish personal relationships with the teacher, and therefore may prefer human to machine feedback. Also, younger learners may not have sufficient and sustainable motivation to engage with computer-generated feedback, which not only lacks the human touch but may also contain too dense and complex information for them to decipher. Although AWE can free teachers up and reduce their workload, AWE programs were not designed with younger L2 learners in mind and may not be entirely suited to school student needs (perhaps except for older/more proficient secondary students). On the other hand, L2 school teachers themselves may lack knowledge, competence, and experience in using AWE programs; some of them may be skeptical of their effectiveness. Not until new AWE programs that cater to the needs of younger L2 learners are developed, tested, and proved effective, it is unlikely that existing AWE programs

designed for older learners can make forays into classroom writing assessment in L2 school contexts.

Screencast Feedback

Another way in which technology can be used to facilitate teacher feedback is screencasting. Instead of writing feedback on student texts, teachers can create screencast videos for delivering online feedback. Such electronic feedback allows teachers to combine spoken comments (audio) and on-screen actions (video) in order to show students how they can revise and improve their writing (Stannard 2006). By incorporating auditory and visual input, screencast feedback is an improvement over audio-based feedback since students do not just hear but also see teachers' edits and comments on the computer screen. Screencast feedback enables teachers to talk to students, and hence it is like a "halfway house" between giving students written feedback and conferencing with them face to face.

To produce a screencast video, teachers need a screencast software, such as Jing (http://jingproject.com), which is a free, user-friendly software that allows teachers to record their feedback in 5 min. The video feedback can be saved as a link and emailed to students. A sample screencast feedback produced through Jing can be found in Séror (2012, p. 108): http://www.screencast.com/t/uGh31Nh7fq. Screencast-O-Matic is another free downloadable software for recording video feedback: http://www.screencast-o-matic.com/. To video their feedback, teachers open the student text and get ready other documents that will be used when delivering the video feedback, such as the assessment rubric and other resources that will be used to illustrate or support the feedback. Screencast feedback thus enables teachers to gather relevant resources to provide students with additional support while commenting on their writing. For example, teachers can switch between the student text and the assessment rubric, showing students which particular part of the rubric is drawn upon to evaluate the student writing.

One advantage of screencast feedback is that students can view it as often as they like, pausing at any time as they see fit, and repeating parts that they are not clear about. Playing the video feedback with the teacher speaking to them and yet without the physical presence of the teacher can take away some of the pressure too. In the words of Séror (2012), "screencasting technology represents a low-cost, intuitive, and time-saving interface the multimodal nature of which can counter limitations typically associated with more traditional feedback approaches" (p. 105). In Mathieson's (2012) recent study comparing text-only feedback (text-based feedback via Track Changes in Microsoft Word) and text-plus-audiovisual feedback (text-based feedback via Track Changes in Microsoft Word plus screencast feedback), the participating students appreciated the text-plus-audiovisual feedback more than the text-only feedback, and they found it more useful in facilitating their learning. In particular, screencasting was found to render "the feedback more engag-

ing, comprehensive, and effective and that hearing the instructor's voice made the feedback feel more 'personal' and 'real'" (p. 149).

Screencast feedback is not without problems. When technology fails – e.g., if the audio quality is undesirable – the screencast feedback will be rendered much less useful than it is originally intended. And although the teacher is talking to the student through screencasting, it is not the same as face-to-face conferencing where students can interact with the teacher in real time. Screencast feedback therefore cannot replace conferencing. That said, in many school contexts particularly those that involve large class sizes, conferencing is rarely conducted, and screencast feedback can provide an option that allows teachers to talk to students about their writing. Indeed, teachers need not adopt polar positions, choosing between either traditional or technology-enhanced feedback; a more nuanced perspective involves a combined approach that capitalizes on the benefits of different modes of feedback (Silva 2012).

Technology in Self- and Peer Evaluation

In L2 school contexts, students tend to be reliant on teacher feedback. However, despite the best efforts of teachers, teacher feedback alone is inadequate to help students develop independence and self-editing skills. In writing classrooms that promote AfL/AaL, students have to be empowered to call the shots. This section introduces several web-based resources that can be exploited to help students edit and evaluate their own or their peers' writing.

Microsoft Word Tools for Spelling, Grammar, and Vocabulary

Equipped with spelling and grammar check functions and a thesaurus, Microsoft Word provides the most common technology-assisted tools instantly available to a wide audience and comes in handy for self–/peer evaluation. Misspelled words and grammatical errors are flagged with a red and blue squiggly line, respectively, and students can fix their spelling and grammar errors by capitalizing on the suggestions provided by Word. To improve the variety of word choice, students can use the built-in thesaurus to look for synonyms (or antonyms). Since L2 school learners may not be well versed in these functions provided by Word (as they may not use word processers to compose their essays on a regular basis), teachers can provide training to enable students to edit their writing using the spelling and grammar check functions and to enrich their word choice using the thesaurus.

Milton and Cheng (2010), however, warn of the limitations of the Word spelling and grammar checkers based on the parsing technology. Since L2 learner texts are difficult to parse for errors due to their unconstrained nature, the software may not be able to catch all grammatical errors (e.g., In "I concern you" the error is not

flagged by Word). Sometimes the grammar checker may fail to reflect the writer's original intention, and as a result the correct version suggested may not be helpful or accurate. For instance, in "It not worth it," the Word grammar checker suggests that it is a fragment when in fact the main verb is missing. For thesaurus, it provides a list of synonyms (or antonyms) as possible alternatives, but they are not necessarily appropriate in the context intended by the student writers. On balance, while it is a good idea to alert students to the Word spelling and grammar checking functions, it is important to make them realize the limitations of these online tools so that they do not turn to them as a "a deus ex machina for correction" (Milton and Cheng 2010, p. 34). As teachers introduce students to the range of technology-assisted tools available to help them evaluate their own writing, it is important to draw attention to the limitations of these resources and to encourage students to develop their own grammatical judgment through testing their evolving hypotheses of L2. With the Word thesaurus, students should be warned that it is unwise to replace their original words with the suggested synonyms unthinkingly; instead they have to pay attention to the appropriate use of vocabulary in context. Concordancing, which we turn to in the next section, will be useful for this purpose as it enables students to examine language use in context.

Concordancing

Concordancing gives students access to "databases of authentic language uses culled from multiple sources" (Yoon and Hirvela 2004, p. 259), which are comprised of a large amount of authentic target language discourse (i.e., corpus/corpora) through which students can develop more nuanced understandings of usage or meaning in context. A concordance can be a software (e.g., Check My Words, Milton 2006) or web based (e.g., British National Corpus). Through consulting concordancing resources, students engage in a discovery-based approach to learning, during which they can verify the problems they pose, get answers to their problems, or edit their writing. Oftentimes concordancing does not give students model or correct answers right away, but they have to find out what works or what does not work in their writing through thinking and reflection. This is in line with AfL/AaL, which develops students' ability to take charge of their own learning. There is research evidence showing that concordancing can help reduce student written errors (e.g., Gaskell and Cobb 2004; Luo and Liao 2015; Todd 2001). Research has also demonstrated that concordancing can allow students to solve language-related problems in writing, such as collocation and simple confirmation (Lai and Chen 2015; Yoon 2008), and that it can be used in tandem with other complementary resources (e.g., dictionaries) to benefit student writing (Yoon 2016).

Although students of the twenty-first century are generally technology savvy, L2 school learners have to be introduced to relevant concordancing resources and shown how to utilize them to benefit their writing. With proper training and support,

concordancing can be a useful and productive reference tool for improving written accuracy and promoting learner autonomy (Yoon 2011). Quinn (2015) has proposed a learner training program that familiarizes students with the use of corpora as a reference tool to enhance their writing. First, students can be introduced to the concept of a corpus (the "what" and "why") and then provided with simple online practice. Then, they make use of concordancing to improve language use in their texts, focusing attention on word collocations and lexical substitutions. After receiving teacher feedback, students make further use of concordancing to correct their errors in writing. They can even conference with the teacher to talk about the challenges presented by concordancing, during which the teacher can respond to student individual needs.

It is important to note that concordancing resources are not meant as panaceas, nor substitutes for the teacher and peers for feedback. They are used to enhance writing, increase independence, and improve self-/peer editing skills, which are all crucial to AfL/AaL. Examples of web-based concordancing include:

- British National Corpus: www.natcorp.ox.ac.uk
- Collins WordBanks Online: www.collins.co.uk/page/Wordbanks+Online
- International Corpus of English: http://www.ucl.ac.uk/english-usage/projects/ice.htm
- The Corpus of Contemporary American English: corpus.byu.edu/coca/
- Just the Word: http://www.just-the-word.com/
- Treebank of Learner English: http://esltreebank.org/

Other Online Tools for Self–/Peer Evaluation

Apart from checking language use in writing (e.g., Word spelling, grammar, and thesaurus, as well as concordancing), there are online tools that enable students to address more global issues in writing. Microsoft Word, for example, provides annotation tools for students to give peer comments on both global and local issues. With the "comment" tool, students can give feedback on different parts of the peer's text, and such feedback can be emailed back to the author for review. The "Track Changes" tool, on the other hand, allows students to edit, add, and/or delete the peer's text, while the author can keep track of the original version and decide whether to accept or reject the suggested changes. In addition, Google Docs provides a web-based platform for students to edit google documents stored on the server online, during which peer feedback can be provided. Screencast technology can also be exploited to facilitate self- and peer evaluation. After teachers have modeled feedback delivery through screencasting, students can work in collaborative groups and produce screencast feedback for their peers. To encourage metacognition and self-regulated learning, students can conduct self-evaluation using screencast technology and examine their own writing by asking relevant metacognitive questions and analyzing their own strengths and weaknesses. Student videos can be sent to the teacher, who can give further comments to help students improve their writing.

Research about the potential of online feedback for L2 learners is mostly conducted in tertiary contexts and mainly addresses the potential benefits of computer-mediated peer feedback, which is found to suit students who feel inhibited to give feedback in face-to-face situations (Ho and Savignon 2007; Savignon and Roithmeier 2004). In writing classrooms that emphasize AfL/AaL, both self- and peer evaluation should be encouraged. In L2 school contexts, where learners are less mature and proficient than their tertiary counterparts, the choice of suitable online tools is crucial. Teachers have to provide not only guidance but also training and practice so that students use the online tools with confidence and competence. The next section introduces a new Writing ePlatform designed by the Hong Kong Education Bureau, which demonstrates how technology can be used to facilitate self- and peer evaluation.

The Writing ePlatform: A Hong Kong Example that Puts Students at the Center of Learning

Recently, the Hong Kong Education Bureau (EDB) and the Center for Language Education at the Hong Kong University of Science and Technology (HKUST) (commissioned by the EDB) have developed a new Writing ePlatform that aims to promote AfL/AaL among upper primary and lower secondary students (i.e., Grades 4–9). Unlike AWE, the Writing ePlatform is not a teacher evaluation tool. Instead, it comprises a number of tools that promote a discovery approach to learning and encourages students to reflect, self-assess, and develop greater fluency, accuracy, and independence in writing. It is a technological tool that facilitates AfL/AaL in the writing classroom.

Although the Writing ePlatform is designed for Hong Kong school students with a focus on language errors, because of its potential for promoting AfL/AaL, this section provides a description of this electronic platform[4] to illustrate how technology can be used to provide formative feedback, integrate assessment and learning, and encourage students to take responsibility for learning. The Writing ePlatform can be accessed at:

http://writingelab.edb.hkedcity.net/.

A trial teacher account and a trial student account have been created for interested readers:

- Trial teacher account username: trialte1; password: x0dbwt
- Trial student account username: trial01; password: ubn735

[4] I was invited by the Education Bureau to comment on the Writing ePlatform at its trial stage and later to co-present (together with other teacher educators) a workshop for school teachers in Hong Kong that demonstrated how assessment as learning could be integrated into the Writing ePlatform. Consent to use materials from the Writing ePlatform, including the screenshots from Examples 9.3, 9.4, 9.5, 9.6, 9.7, 9.8, 9.9, and 9.10, has been formally obtained from the Education Bureau, Hong Kong.

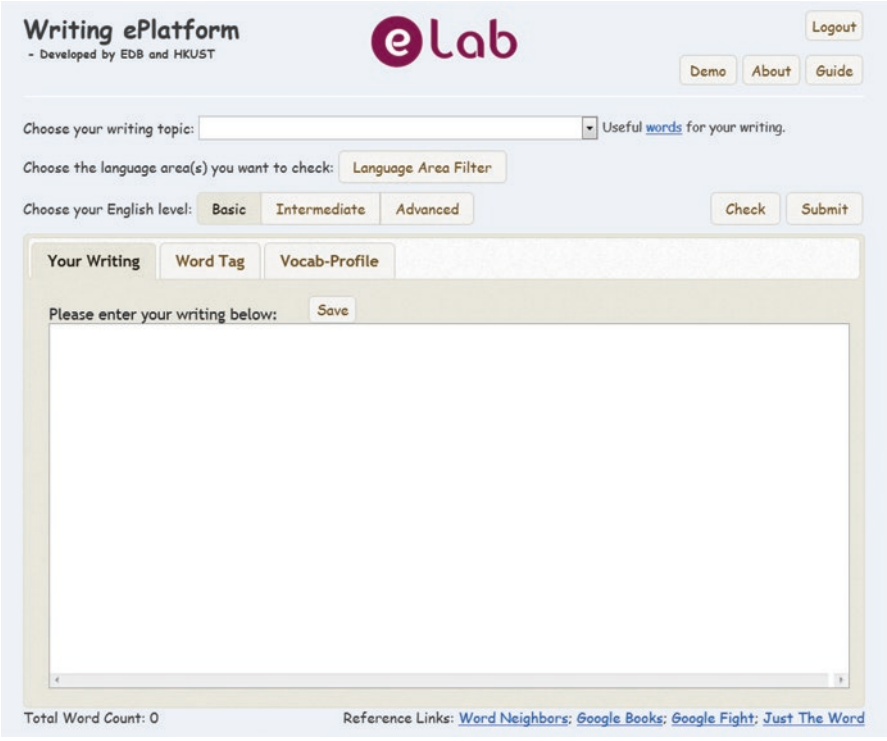
Features of Writing ePlatform

The Writing ePlatform is comprised of the eLab and a number of tools with different functions, which are outlined in the following:

1. Writing eLab

Writing eLab (see Example 9.2) is the student interface where students submit their typed written texts for instant corrective feedback, as well as suggestions on how to improve their writing. Students choose from a total of 11 topics such as "An enjoyable trip," "Fun ways to improve English," and "Writing about my best friend." The error rules of the ePlatform were established from a corpus of 1800 student essays written on these topics, where common errors made by local students were compiled, with additional rules based on the works of Milton (2006, 2011) and Milton and Cheng (2010). The ePlatform also allows students to select the feedback according to their English proficiency level – namely, basic, intermediate, or advanced.

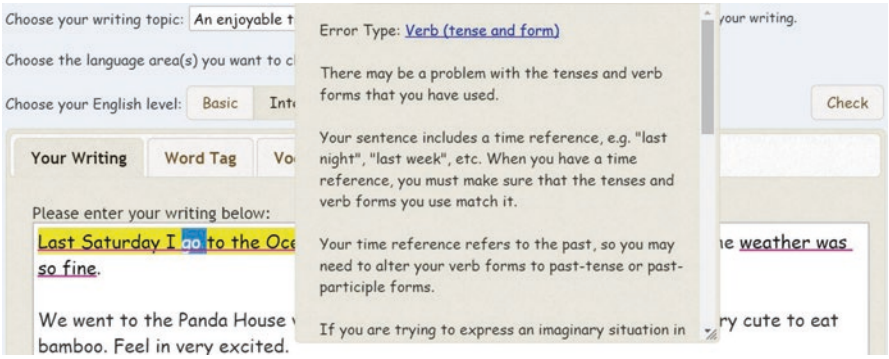
Example 9.2 eLab of the Writing ePlatform



2. Instantaneous corrective feedback

After students have submitted their writing, potential problems in the text will be underlined in red (see Example 9.3). Students can click on the underlined texts and get feedback on how they can improve those problematic parts of the text. The example in Example 9.3 is a problem relating to the verb ("Last Saturday I go to …"), with explanations provided.

Example 9.3 Instant Feedback on Problematic Texts

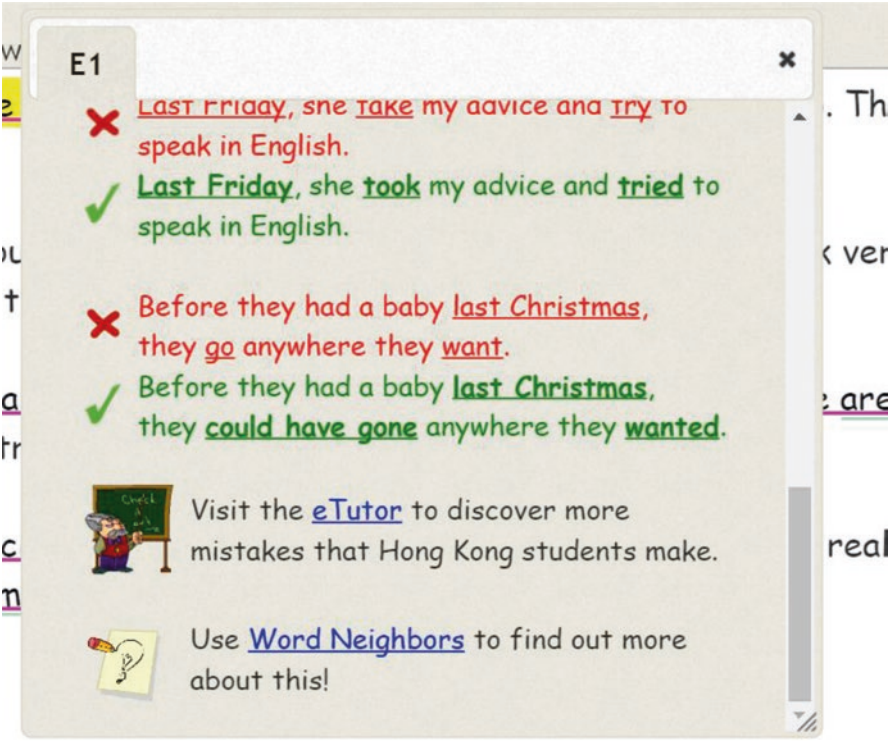


To obtain focused feedback on specific language items, students can choose "Language area filter" (see eLab in Example 9.2) and select the language areas they want feedback on. For example, they can tick "articles" and "prepositions" to receive feedback on these two areas only.

3. Web-based tools: eTutor and Word Neighbors

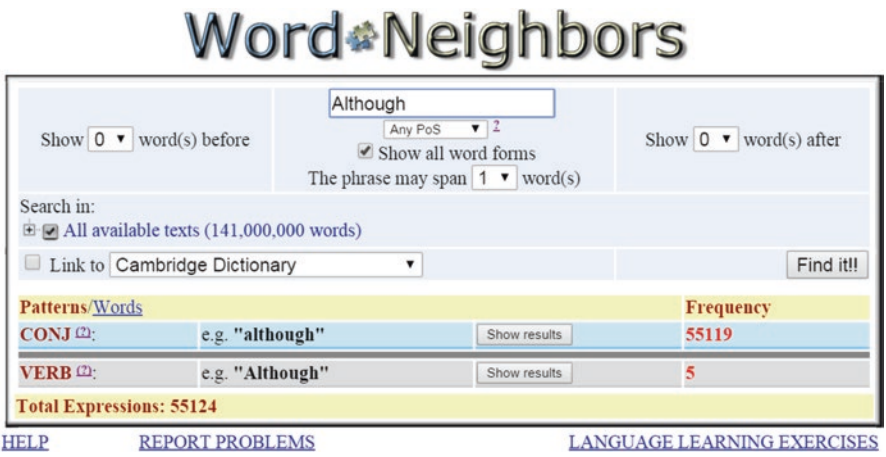
On the instant feedback page, after reading the explanations about the problematic texts highlighted in red (see Example 9.3), students can also go to eTutor and Word Neighbors (see Example 9.4) to get additional help and support. eTutor (Example 9.5) is a web-based portal that provides learning materials on common errors organized around writing topics and error categories. There are supplementary video materials to support learning, giving students help to enhance metacognitive awareness of their own errors. Word Neighbors (see Example 9.6) is a concordance that provides students with additional help with regard to word choice and collocation.

Example 9.4 eTutor and Word Neighbors



Example 9.5 eTutor

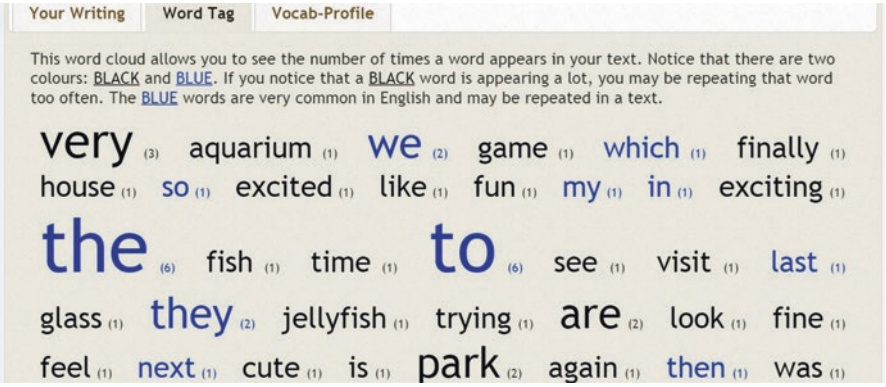
Example 9.6 Word Neighbors



4. Word Tag

To enable students to find out the vocabulary use in their writing, they can click on "Word tag" (see eLab in Example 9.2) and see the number of times a word is used in the text (Example 9.7). In blue are high-frequency words where repeated use is just common in English writing (e.g., function words). In black, however, are words that have been used quite a lot. These are words that students may want to replace, where appropriate. Overall, "Word tag" can provide useful assessment information to enable students to monitor their use of vocabulary in writing.

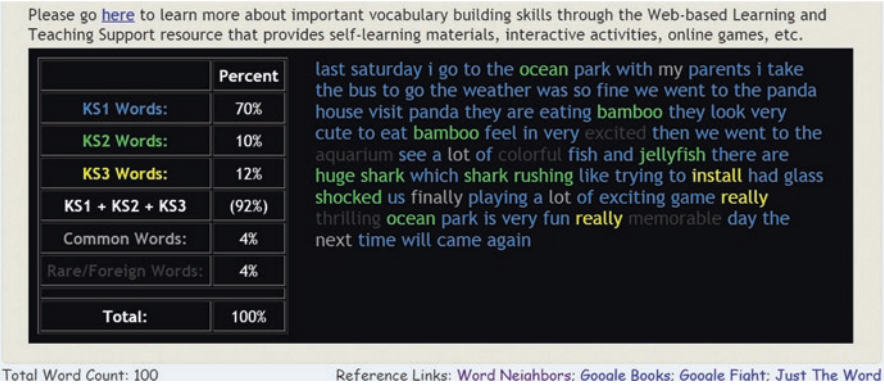
Example 9.7 Word Tag



5. Vocab-Profile

The Vocab-Profile (see eLab in Example 9.2) enables students to find out the types of vocabulary used in their text with reference to the word lists for Key stage 1 (Grades 1–3), Key stage 2 (Grades 4–6), and Key stage 3 (Grades 7–9) provided by the Hong Kong EDB (Example 9.8). In other words, students will be able to find out the range of vocabulary used in the text – specifically the proportion of words that fall within different key stages. A Grade 7 (Key stage 3) student, for example, may find that 70% of the words in her text belong to the word list for Key stage 2 (Grades 4–6). Such assessment information can help students become aware of their range of vocabulary use in writing and take follow-up action, where necessary.

Example 9.8 Vocab-Profile



6. Useful vocabulary for the writing topic

On eLab, students can also click on "Useful words for your writing" next to the writing topic (see eLab in Example 9.2) and find lists of vocabulary on the topic, which are categorized into different subtopics such as "Describing things," "General content words," and "Society, people, and personal information" (see Example 9.9). They can click on the words to find out their meanings and usage. Example 9.10 shows the results of a student's attempt to search for the word "aspect" as an alternative word for his/her writing.

Example 9.9 Useful Words for the Writing Topic "An Enjoyable Trip"

Suggested vocabularies for "An enjoyable trip"

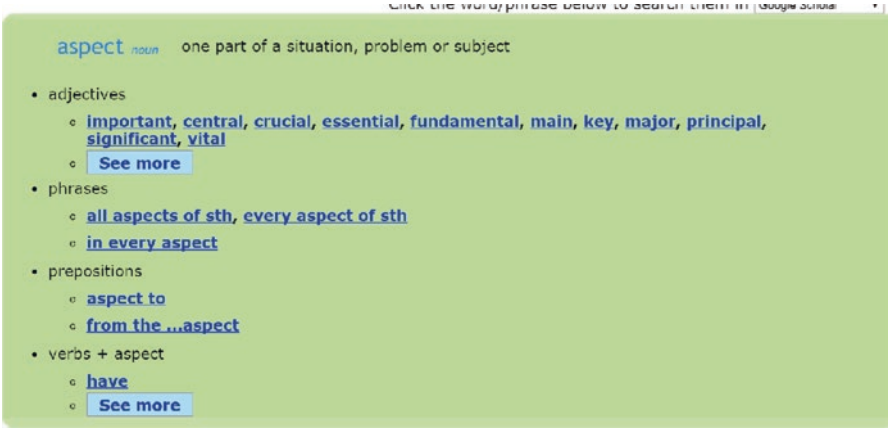
Describing Things

aluminium	angle	approximate	artificial	audio	awkward	base	billion
broad	bundle	capacity	cardboard	category	cement	centimetre	chain
clay	coarse	column	compact	concrete	copper	criteria	cube
curve	cylinder	damp	dear	decrease	delicate	dim	dimension
disgusting	dual	dull	edge	elastic	exact	expand	feature
fine	foot	genuine	giant	gram	heap	hollow	ideal
identical	inch	increase	kilogram	kilometre	least	length	litre
mass	maximum	mere	metre	mild	mile	milligram	millilitre
millimetre	million	minimum	minus	minute	mock	moving	multiple
multiply	naked	neutral	normal	object	outdated	pale	parallel
pattern	pile	plain	plus	pound	precious	precise	proportion
pure	quantity	random	rare	ratio	raw	regular	rosy
rubber	rust	scale	scarce	sequence	series	sole	steady
steel	stiff	substance	subtract	sum	super	swollen	tonne
touching	tough	underground	uniform	upright	vacuum	visible	visual
volume	wax	yard					

General Content Words

affect	army	aspect	cause	characteristic	condition	consider	cool
dare	deal	distance	effect	element	equipment	fact	factor
fear	function	furniture	gang	image	object	obstacle	position

Example 9.10 Search Results of the Word "Aspect"



aspect *noun* one part of a situation, problem or subject

- adjectives
  - important, central, crucial, essential, fundamental, main, key, major, principal, significant, vital
  - See more
- phrases
  - all aspects of sth, every aspect of sth
  - in every aspect
- prepositions
  - aspect to
  - from the ...aspect
- verbs + aspect
  - have
  - See more

Potential of Writing ePlatform for Promoting AfL/AaL

Unlike AWE tools such as *Criterion* and *My Access!,* the Writing ePlatform is not intended to take the place of the human teacher. It is an online tool that provides a corpus-based, human-assisted system to help students identify major errors, to provide scaffolding to support student learning of lexicogrammatical features relevant to their writing task, and to encourage self-assessment, self-reflection, metacognition, and independent learning (McMinn and Leung 2013). The Writing ePlatform

can be exploited in a process- and AfL/AaL-oriented classroom that puts students at the center of learning, facilitating self-evaluation within the process cycle. Students write the first draft on a topic that falls within one of the 11 topics included in the Writing ePlatform. Then they submit their draft to the eLab, which analyzes their problems in writing and provides instant feedback. Based on such feedback, and with the help of the web-based tools, students will revise their text and submit a revised draft. Hence, the electronic feedback provided serves as feed forward, too, to help students improve their writing.

Both the teacher and peers can have important roles to play during the writing process. When students are working on the ePlatform, teachers play the role of a facilitator, making themselves available to offer assistance and advice where necessary. By gathering information about students' common errors diagnosed by the ePlatform, teachers can use the assessment information to plan their grammar instruction and provide grammar reinforcement activities. Students can also work with a partner when reviewing their writing on the ePlatform and get further feedback from their peers to improve their writing.

While the Writing ePlatform is a means to help students learn to improve their writing, it has a number of limitations. The corpus is based on only 11 writing topics, designed for Grade 4–9 students in Hong Kong schools. Also, the ePlatform provides feedback on language use only, and it is not able to catch all errors for students. Electronic feedback generated by the ePlatform should therefore be used together with teacher/peer feedback on content, organization, and other issues. Although the ePlatform does not identify all language errors for students, it diagnoses the major errors in student writing, and hence the feedback is manageable. It is instant, and hence timely, and the convenience brought by technology can make sure that feedback is delivered on an ongoing basis (hence constant feedback). Overall, the ePlatform is able to provide timely, constant, and manageable feedback, which is in line with the notion of "dynamic written corrective feedback" proposed by Hartshorn et al. (2010). Finally, but no less important, although students may demonstrate strong familiarity with technology use, they should not be left to their own devices. Instead teacher coaching, modeling, and instruction at different stages are crucial to the success of technology use in the writing classroom.

Conclusion

This chapter examines the role of technology in classroom writing assessment and feedback. Research on this area is in the ascendant, and to date the findings generated by the growing body of research are promising, suggesting that L2 teachers can make better and further use of technology to promote school learners' writing development. One size, however, does not fit all. Technology use in classroom writing assessment and feedback is influenced by a number of factors, including the institutional context, curriculum goals, the learners' age, needs, proficiency level, access to technology, attitudes of teachers and students, and their skills in using

technologies. Since technology is changing fast, teachers need to keep up-to-date with the newest developments in technology use. More importantly, both teachers and students have to be cognizant of the limitations of technology and the challenges arising from its implementation. And however exciting technologies are, they cannot take the place of the human teacher but should be used as a "supplement to classroom instruction" (Ware and Warschauer 2006, p. 108).

References

Alameen, G. (2011). Learner digital stories in a web 2.0 age. *TESOL Journal, 2*(3), 355–369.

Angay-Crowder, T., Choi, J., & Yi, Y. (2013). Putting multiliteracies into practice: Digital storytelling for multilingual adolescents in a summer program. *TESL Canada Journal, 30*(2), 36–45.

Arena, C. (2008). Blogging in the language classroom: It doesn't "simply happen". *TESL-EJ, 11*(4), 1–7.

Banaszewski, T. M. (2005). *Digital storytelling: Supporting digital literacy in grades 4–12*. Unpublished doctoral dissertation. Georgia Institute of Technology, Atlanta.

Bartlett-Bragg, A. (2003). Blogging to learn. *The Knowledge Tree, 4*, 1–12.

Barton, E. L. (1994). Interpreting the discourses of technology. In C. Selfe & S. Hilligoss (Eds.), *Literacy and computers: The complications of teaching and learning with technology* (pp. 56–75). New York: Modern Language Association of America.

Barton, D., Hamilton, M., & Ivanic, R. (2000). *Situated literacies in context*. London: Routledge.

Bhattacharya, A., & Chauhan, K. (2010). Augmenting learner autonomy through blogging. *ELT Journal, 2*, 1–9.

Bloch, J. (2008). *Technologies in the second language composition classroom*. Ann Arbor: The University of Michigan Press.

Brenner, K. (2014). Digital stories: A 21st century communication tool for the English language classroom. *English Teaching Forum, 52*(1), 22–29.

Bull, G., & Kajder, S. (2004). Tapped in the new incarnation of this valuable resource is now available. *Learning Leading with Technology, 31*(5), 34–37.

Campbell, A. P. (2003). Weblogs for use with ESL classes. *The Internet TESL Journal, 9*(2), 33–35.

Castañeda, M. E. (2013). Digital storytelling: Building 21st-century literacy in the foreign language classroom. *NECTFL Review, 71*, 55–65.

Chen, Y. L., Liu, E. Z. F., Shih, R. C., Wu, C. T., & Yuan, S. M. (2011). Use of peer feedback to enhance elementary students' writing through blogging. *British Journal of Educational Technology, 42*(1), E1–E4.

Cheung, O., & Lee, I. (2013). From story writing to digital storytelling. *Modern English Teacher, 22*(1), 48–54.

Coiro, J., Knobel, M., Lankshear, C., & Leu, D. J. (2008). Central issues in new literacies and new literacies research. In J. Coiro, M. Knobel, C. Lankshear, & D. J. Leu (Eds.), *The handbook of research in new literacies* (pp. 1–22). Mahwah: Erlbaum.

Deane, P. (2013). On the relation between automated essay scoring and modern views of the writing construct. *Assessing Writing, 18*, 7–24.

Du, H. S., & Wagner, C. (2007). Learning with weblogs: Enhancing cognitive and social knowledge construction. *IEEE Transactions on Professional Communication, 50*(1), 1–16.

El Ebyary, K., & Windeatt, S. (2010). The impact of computer-based feedback on students' written work. *International Journal of English Studies, 10*(2), 121–142.

Emert, T. (2013). 'The Transpoemations project': Digital storytelling, contemporary poetry, and refugee boys. *Intercultural Education, 24*(4), 355–365.

Franzke, M., Kintsch, E., Caccamise, D., & Johnson, N. (2005). Summary street: Computer support for comprehension and writing. *Journal of Educational Computing Research, 33*(1), 53–80.

Gaskell, D., & Cobb, T. (2004). Can learners use concordance feedback for writing errors? *System, 32*(3), 301–319.

Gebhard, M., & Harman, R. (2011). Reconsidering genre theory in K-12 schools: A response to school reforms in the United States. *Journal of Second Language Writing, 20*(1), 45–55.

Gee, J. P. (2008). Learning and games. *The ecology of games: Connecting youth, games, and learning, 3*, 21–40.

Godwin-Jones, R. (2003). Emerging technologies. Blogs and wikis: Environments for on-line collaboration. *Language, Learning and Technology, 7*(2), 12–16.

Hafner, C. A. (2013). Digital composition in a second or foreign language. *TESOL Quarterly, 47*(4), 830–834.

Hafner, C. A., & Miller, L. (2011). Fostering learner autonomy in English for science: A collaborative digital video project in a technological learning environment. *Language, Learning and Technology, 15*(3), 68–86.

Hartshorn, K. J., Evans, N. W., Merrill, P. F., Sudweeks, R. R., Strong-Krause, D., & Anderson, N. J. (2010). Effects of dynamic corrective feedback on ESL writing accuracy. *TESOL Quarterly, 44*(1), 84–109.

Ho, M. C., & Savignon, S. J. (2007). Face-to-face and computer-mediated peer review in EFL writing. *CALICO Journal, 24*(2), 269–290.

Honeyford, M. A. (2013). The simultaneity of experience: Cultural identity, magical realism and the artefactual in digital storytelling. *Literacy, 47*(1), 17–25.

Hur, J. W., & Suh, S. (2012). Making learning active with interactive whiteboards, podcasts, and digital storytelling in ELL classrooms. *Computers in the Schools, 29*(4), 320–338.

Kajder, S., Bull, G., & Albaugh, S. (2005). Constructing digital stories. *Learning Leading with Technology, 32*(5), 40–42.

Kost, C. (2011). Investigating writing strategies and revision behavior in collaborative wiki projects. *CALICO Journal, 28*, 606–620.

Lai, S. L., & Chen, H. J. (2015). Dictionaries vs concordancers: actual practice of the two different tools in EFL writing. *Computer Assisted Language Learning, 28*(4), 341–363.

Lambert, J. (2006). *Digital storytelling: Capturing lives, creating community*. Berkeley: Digital Diner Press.

Lambert, J. (2009). Where it all started: The center for digital storytelling in California. In J. Hartley & K. McWilliam (Eds.), *Story circle: Digital storytelling around the world* (pp. 79–90). Malden: Wiley-Blackwell.

Lavolette, E., Polio, C., & Kahng, J. (2015). The accuracy of computer-assisted feedback and students' responses to it. *Language, Learning and Technology, 19*(2), 50–68.

Li, M. (2013). Individual novices and collective experts: Collective scaffolding in wiki-based small group writing. *System, 41*, 752–769.

Li, M., & Kim, D. (2016). One wikis, two groups: Dynamic interactions across ESL collaborative writing tasks. *Journal of Second Language Writing, 31*, 25–42.

Li, M., & Zhu, W. (2013). Patterns of computer-mediated interaction in small writing groups using wikis. *Computer Assisted Language Learning, 26*, 61–82.

Li, J., Link, S., & Hegelheimer, V. (2015). Rethinking the role of automated writing evaluation (AWE) feedback in ESL writing instruction. *Journal of Second Language Writing, 27*, 1–18.

Liao, H. C. (2016). Using automated writing evaluation to reduce grammar errors in writing. *ELT Journal, 70*(3), 308–319.

Lund, A. (2008). Wikis: A collective approach to language production. *ReCALL, 20*(1), 35–54.

Luo, Q., & Liao, Y. (2015). Using corpora for error correction in EFL learners' writing. *Journal of Language Teaching and Research, 6*(6), 1333–1342.

Mak, B., & Coniam, D. (2008). Using wikis to enhance and develop writing skills among secondary school students in Hong Kong. *System, 36*(3), 437–455.

Martinez-Alba, G. (2014). Taking digital stories to another level: Making documentaries. *TESOL Journal, 5*(4), 743–749.

Mathieson, K. (2012). Exploring student perceptions of audiovisual feedback via screencasting in online courses. *American Journal of Distance Education, 26*(3), 143–156.

McMinn, S., & Leung, F. Y. (2013). Writing ePlatform: A corpus-based resource to support learning and assessment in writing. In Hong Kong Education Bureau (Ed.), *Assessment and learning (issue 2)* (pp. 154–172). Hong Kong: The Hong Kong Government Printer.

Miceli, T., Murray, S. V., & Kennedy, C. (2010). Using an L2 blog to enhance learners' participation and sense of community. *Computer Assisted Language Learning, 23*(4), 321–341.

Milton, J. (2006). Resource-rich web-based feedback: Helping learners become independent writers. In K. Hyland & F. Hyland (Eds.), *Feedback in second language writing: Contexts and issues* (pp. 123–139). New York: Cambridge University Press.

Milton, J. (2011, September). *A case study of a corpus-based, IT-enabled approach to improving English proficiency*. Paper presented at ICT in Analysis, Teaching & Learning of Language (ICTATLL) Conference, Kyoto.

Milton, J., & Cheng, V. S. Y. (2010). *A toolkit to assist L2 learners become independent writers*. Proceedings of the North American Chapter of the Association for Computational Linguistics – Human Language Technologies (NAACL HLT) Workshop on Computational Linguistics and Writing (pp. 33–41), Los Angeles, CA, USA.

Murray, L., & Hourigan, T. (2008). Blogs for specific purposes: Expressivist or socio-cognitivist approach? *ReCALL, 20*(1), 82–97.

Ohler, J. (2006). The world of digital storytelling. *Educational Leadership, 63*(4), 44–47.

Ohler, J. (2008). The semantic web in education. *Educause Quarterly, 31*(4), 7–9.

Oravec, J. A. (2002). Bookmarking the world: Weblog applications in education. *Journal of Adolescent & Adult Literacy, 45*(7), 616–621.

Oravec, J. A. (2003). Blending by blogging: Weblogs in blended learning initiatives. *Journal of Educational Media, 28*(2–3), 225–233.

Page, E. B. (2003). Project essay grade: PEG. In M. D. Shermis & J. C. Burstein (Eds.), *Automated essay scoring: A cross-disciplinary perspective* (pp. 43–54). Mahwah: Lawrence Erlbaum Associates.

Pardo, B. S. (2014). Digital storytelling: A case study of the creation, and narration of a story by EFL learners. *Digital Education Review, 26*, 74–84.

Quinn, C. (2015). Training L2 writers to reference corpora as a self-correction tool. *ELT Journal, 69*(2), 165–177.

Richardson, J. T. (2006). Investigating the relationship between variations in students' perceptions of their academic environment and variations in study behaviour in distance education. *British Journal of Educational Psychology, 76*(4), 867–893.

Robin, B. (2008). Digital storytelling: A powerful technology tool for the 21st century classroom. *Theory Into Practice, 47*(3), 220–228.

Savignon, S. J., & Roithmeier, W. (2004). Computer-mediated communication: Texts and strategies. *Calico Journal, 21*(2), 265–290.

Séror, J. (2012). Show me! Enhanced feedback through screencasting technology. *TESL Canada Journal, 30*(1), 104–116.

Sevilla-Pavón, A. (2015). Computer assisted language learning and the internationalisation of the Portuguese language in higher education contexts. *Digital Education Review, 28*, 37–44.

Shermis, M. D., & Burstein, J. (Eds.). (2003). *Automated essay scoring: A cross-disciplinary perspective*. Mahwah: Lawrence Erlbaum.

Shermis, M., Garvan, C. W., & Diao, Y. (2008, March). *The impact of automated essay scoring on writing outcomes*. Paper presented at the Annual Meeting of the National Council on Measurement in Education, New York.

Shermis, M. D., Burstein, J., & Bursky, S. A. (2013). Introduction to automated essay evaluation: Current applications and new directions. In M. D. Shermins & J. Burstein (Eds.), *Handbook of automated essay evaluation* (pp. 1–15). New York: Routledge.

Silva, M. L. (2012). Camtasia in the classroom: Student attitudes and preferences for video commentary or Microsoft word comments during the revision process. *Computers and Composition, 29*, 1–22.

Slavin, R. E. (1989). Cooperative learning and student achievement: Six theoretical perspectives. *Advances in Motivation and Achievement, 6*, 161–177.

Stannard, R. (2006). The spelling mistake: Scene one, take one. *Times Higher Education*. Retrieved from http://www.timeshighereducation.co.uk/story.asp?sectioncode=26&storycode=207117

Stevenson, M., & Phakiti, A. (2014). The effects of computer-generated feedback on the quality of writing. *Assessing Writing, 19*, 51–65.

Storch, N. (2013). *Collaborative writing in L2 classrooms*. Bristol: Multilingual Matters.

Street, B. (2003). What's "new" in new literacy studies? Critical approaches to literacy in theory and practice. *Current Issues in Comparative Education, 5*(2), 77–91.

Street, B. (2004). Futures of the ethnography of literacy? *Language and Education, 18*(4), 326–330.

Sun, Y. C. (2010). Extensive writing in foreign-language classrooms: A blogging approach. *Innovations in Education and Teaching International, 47*(3), 327–339.

Surma, A. (2016, May). *Writing is the question, not the answer: A critical cosmopolitan approach to resisting neoliberalism. Plenary paper presented at the Conference on Writing Education across* Borders. China: Guangdong University of Foreign Studies.

Thanabalan, T. V., Siraj, S., & Alias, N. (2015). Evaluation of a digital story pedagogical module for the indigenous learners using the stake countenance model. *Procedia – Social and Behavioral Sciences, 176*, 907–914.

Todd, R. W. (2001). Induction from self-selected concordances and self-correction. *System, 29*(1), 91–102.

Ward, J. M. (2004). Blog assisted language learning (BALL): Push button publishing for the pupils. *TEFL Web Journal, 3*(1), 1–16.

Warden, C. A., & Chen, J. F. (1995). Improving feedback while decreasing teacher burden in R.O.C. ESL business English classes. In P. Porythiaux, T. Boswood, & B. Badcock (Eds.), *Explorations in English for professional communications* (pp. 125–137). Hong Kong: City University of Hong Kong.

Ware, P. D., & Warschauer, M. (2006). Electronic feedback and second language writing. In K. Hyland & F. Hyland (Eds.), *Feedback in second language writing: Contexts and issues* (pp. 105–122). New York: Cambridge University Press.

Warschauer, M., & Grimes, D. (2008). Automated writing assessment in the classroom. *Pedagogies: An International Journal, 3*, 22–36.

Warschauer, M., & Ware, P. (2006). Automated writing evaluation: Defining the classroom research agenda. *Language Teaching Research, 10*(2), 157–180.

Warschauer, M., Zheng, B., & Farkas, G. (2013). Digital writing and diversity: The effects of school laptop programs on literacy processes and outcomes. *Journal of Educational Computing Research, 48*(3), 267–299.

Woo, M., Chu, S. K. W., Ho, A., & Li, X. (2011). Using a wiki to scaffold primary-school students' collaborative writing. *Educational Technology & Society, 14*(1), 43–54.

Yang, Y. T. C., & Wu, W. C. I. (2012). Digital storytelling for enhancing student academic achievement, critical thinking, and learning motivation: A year-long experimental study. *Computers & Education, 59*(2), 339–352.

Yoon, H. (2008). More than a linguistic reference: The influence of corpus technology on L2 academic writing. *Language, Learning and Technology, 12*(2), 31–48.

Yoon, C. (2011). Concordancing in L2 writing class: An overview of issues and research. *Journal of English for Academic Purposes, 10*(3), 130–139.

Yoon, C. (2016). Concordancers and dictionaries as problem-solving tools for ESL academic writing. *Language, Learning and Technology, 20*(1), 209–229.

Yoon, H., & Hirvela, A. (2004). ESL student attitudes toward corpus use in L2 writing. *Journal of Second Language Writing, 13*(4), 257–283.