Chapter 11

Preparing Tomorrow’s Second Language Writing Teachers to Use Technology

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Abstract

This chapter addresses the technology preparation of future second language (L2) writing teachers. Particular attention is paid to issues associated with the integration of technology-based writing tools and their role in the writing classroom. In spite of a wealth of research into the increasing variety of writing activities in language classrooms, there has been little written about the role of technology in the preparation of language teachers focused upon varied forms of writing using new and emerging tools. This chapter addresses the CALL preparation of teachers who specialize in second language writing, CALL writing specialists, and those teachers who teach writing as well as other skills. In an attempt to align this preparation with appropriate expectations for language teachers, this discussion is presented in the context of the TESOL technology standards. Suggestions for varied writing activities, practices, and opportunities within new and emerging writing contexts are presented.

1. Introduction

We live in a world with varied emerging contexts for practicing writing. This is evident in the breadth of topics covered in this CALICO monograph. We are also witnessing a dramatic change in the nature of writing itself, including the emergence of netspeak and a merging of written and spoken discourse in web contexts (Crystal, 2001, 2008). In order to prepare teachers for the kinds of writing practices and tools that they are likely to encounter in their careers, we need to have a solid understanding of the various scholarly perspectives that exist on the role of writing in the language classroom. We also need to understand the writing practices of second language learners. Further, it is important that we recognize the insights that have come forth in recent years regarding language teacher preparation, in particular preparation for using technology in the language classroom, and how these insights may apply to varied writing practices and contexts. This chapter utilizes findings from a number of previous studies to develop a better understanding of the nature of language teacher preparation for using technology in classrooms that incorporate writing. Particular emphasis is placed upon activities and practices that involve the collaborative construction of written information.

Writing is perhaps the most addressed skill in language teaching and learning. The majority of the scholarship on writing has focused upon formal academic writing. Many authors have provided insightful guidance for writing teachers in preparation. Some have provided comprehensive perspectives that any serious writing teacher should be familiar with, including Raines (1983), Krell (1990), Reid (1993), Williams (2005), and Ferris (2003). These volumes have provided a foundation in concepts such as writing process, product, genre, context, assessment, feedback, and collaboration for language teachers working in composition classrooms around the world. It is not within the bounds of this chapter to provide an overview of these books, but those who are not familiar with them should seek them out if the aforementioned concepts are not familiar. These works have also established practices that have been adapted to new writing contexts. Warschauer (1995) incorporated many of these practices in his recommendations for teaching writing in what was at the time the emerging technological context of email. Warschauer’s book introduced a variety of basic activities that encouraged interaction and occasionally collaborative construction of knowledge. In the intervening years researchers have investigated a broad spectrum of CALL writing activities, tools, and contexts. Today we are faced with a seemingly unlimited number of technological writing tools and perspectives on how they may be used in teaching writing. It is likely that the sheer quantity of these options would overwhelm a casual observer. A brief history of investigation into the role of technology in the writing classroom can help us understand how we arrived at our current situation and how writing today is often seen as more than producing an academic paragraph or paper.

Early on computers in the writing classroom were seen as beneficial by many, but writing on them was still viewed as an individual act. Advantages to using computers in writing classes included that they helped with individualized instruction, provided help when students needed it most, provided instant feedback on certain points, saved students time, helped students understand writing as fluid and dynamic, allowed students to focus more on the meaning in their papers earlier in the process and not so much on form (Wren, 1984), and were useful in helping students write collaboratively on a single computer (Dan, Legenhausen, & Wolff, 1990). The monumental changes that technology has had upon writing have largely begun with the original transition from pen and paper to word processors, and many of the benefits, concerns, and pedagogical implications noted today can be found in one of the first works devoted to how technology affects writing (see Lam & Pennington, 1995). They noted that word processors were a “fun” (p. 63) “real world tool” (p. 64) that made revision and feedback more convenient and increased students’ creativity and motivation. Anticipating the influence of technology on writing, Warschauer and Healey (1998) predicted that within 10 to 20 years documents would mainly be written, distributed, and read online and not on paper. In the intervening years we have seen numerous new computer-mediated communication (CMC) contexts arise, including text chats, voice chats, video chats, wikis, blogs, and microblogs. We have seen social networking sites such as Facebook and Myspace transition from hobbyist platforms to a multi-billion dollar industry with billions of users. Numerous studies have been conducted across these new writing contexts, including investigation into the use of blogs (Bloch, 2007a; Elola & Osko, 2008; Lee, 2010; Yang, 2011) and wikis (Arnold, Ducate & Kost, 2009; Kessler, 2009). Recent research has revolved around a variety of emerging writing tasks and types of writing interaction, with particular attention toward collaborative writing (Kessler, 2009, 2010; Kessler, Bikowski, & Boggs, 2012; Storch, 2005; Elola & Osko, 2010; Osko & Elola, 2010; Parks, Huot, Hamers, & Lemonnier, 2003). For an overview of collaborative writing, see Storch (this volume). Some notable investigations that include pedagogically actionable implications for language teachers and suggestions for further reading within this volume are listed in Table 1.

Table 1
Pedagogical Suggestions from Recent Writing and CALL Research

<table>
<thead>
<tr>
<th>Pedagogical practice/observation</th>
<th>Studies</th>
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<tbody>
<tr>
<td><strong>General</strong></td>
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<tr>
<td>The public nature of online writing contexts can motivate students.</td>
<td>Bloch (2007b), Pennington (2004)</td>
</tr>
<tr>
<td>Considering multiple literacies can enhance writing instruction.</td>
<td>Selfe and Hawisher (2004)</td>
</tr>
<tr>
<td>Speaking fluency can be promoted through the use of CMC writing tools.</td>
<td>Payne and Whitney (2002)</td>
</tr>
<tr>
<td>Comfort with technology tools and writing expectations can influence students’ writing.</td>
<td>Ware (2004)</td>
</tr>
<tr>
<td>Supporting K-12 teachers to integrate technology into their teaching is crucial.</td>
<td>Ware and Rivas (this volume)</td>
</tr>
<tr>
<td>Exposing teachers to a variety of online resources to assist students is necessary.</td>
<td>Ferris (this volume)</td>
</tr>
<tr>
<td><strong>Automated writing evaluation (AWE)</strong></td>
<td></td>
</tr>
<tr>
<td>AWE is considered helpful by students.</td>
<td>Elliot and Mikulas (2004)</td>
</tr>
<tr>
<td>AWE may help motivate students.</td>
<td>Warschauer &amp; Grimes (2008)</td>
</tr>
<tr>
<td>AWE can provide accurate feedback.</td>
<td>Pendar and Cotos (2008)</td>
</tr>
<tr>
<td>AWE promises vast potential if carefully implemented.</td>
<td>Cotos (this volume)</td>
</tr>
<tr>
<td>AWE can promote formulaic writing.</td>
<td>Ware and Warschauer (2006)</td>
</tr>
<tr>
<td>AWE draws excessive attention to discreet errors at the expense of global concerns.</td>
<td>Warschauer and Grimes (2008)</td>
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</tbody>
</table>
### Feedback on AWE and Teacher Intervention

<table>
<thead>
<tr>
<th>Feedback</th>
<th>Studies</th>
</tr>
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<tbody>
<tr>
<td>Feedback can be delivered in varied ways to raise student uptake.</td>
<td>Ducate and Arnold (this volume)</td>
</tr>
<tr>
<td>Interactive feedback can help students reflect upon their writing.</td>
<td>Ferris (2010), Lee (this volume)</td>
</tr>
<tr>
<td>Electronic feedback has improved legibility and permanence.</td>
<td>Ferris (this volume)</td>
</tr>
<tr>
<td>Peer response can be a valued and meaningful means of feedback with careful implementation.</td>
<td>Ferris and Hadgeock (2005)</td>
</tr>
<tr>
<td>Computer-generated feedback can help students find and correct plagiarism in their writing.</td>
<td>Bikowski (this volume)</td>
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### Collaborative Writing Studies

<table>
<thead>
<tr>
<th>Collaborative writing</th>
<th>Studies</th>
</tr>
</thead>
<tbody>
<tr>
<td>Collaborative writing may require “a reconceptualization of classroom teaching.”</td>
<td>Storch (2005, p. 169)</td>
</tr>
<tr>
<td>Collaborative writing allows students to exchange feedback.</td>
<td>Storch (2005)</td>
</tr>
<tr>
<td>Collaborative writing can involve varied degrees of student control and teacher intervention.</td>
<td>Chun (2006), Kessler (2009), Storch, (this volume)</td>
</tr>
<tr>
<td>Collaborative writing promotes peer response activities.</td>
<td>Liang (2010)</td>
</tr>
<tr>
<td>Collaborative writing can help students develop autonomous language learning abilities.</td>
<td>Kessler and Bikowski (2010)</td>
</tr>
<tr>
<td>Collaborative writing can complement individual writing practices.</td>
<td>Elola and Oskoz (2010)</td>
</tr>
<tr>
<td>Collaborative writing can be less comfortable for students even when they believe it can produce better results.</td>
<td>Elola and Oskoz (2010)</td>
</tr>
<tr>
<td>Collaborative writing can promote complexity and lexical diversity through online planning in text chat.</td>
<td>Sauro and Smith (2010)</td>
</tr>
<tr>
<td>Collaborative writing can be done in groups using many-to-many tools.</td>
<td>Kessler et al. (2012)</td>
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**Note:** For information on more studies, see the annotated bibliography of research on the use of technology in second language writing by Tony Silva, this volume.

These recent studies should not only guide us in our use of the tools in question but should also help us anticipate how to use tools that will emerge in the near future. It is important that teachers be aware of the changing nature and potential of tools that support writing. As Bloch (2007b) stated in the closing of his book, "The primary purpose of books like this one is to help teachers take control of the use of technologies in their classrooms so they too can participate in how their future and the future of their students will be invented" (p. 213). I suggest that teacher trainers should promote this kind of participation. In fact, there are a number of specific things they can do toward this goal. These will be addressed later in this chapter.

### 3. The Changing Nature of Writing

Many scholars have commented on the influence of technology in changing the nature of contemporary written language. Thorne (2003) notes that new digital communication technologies have shaped communication practices in general and that writing context, including the writing community and writing tools, play a crucial role in how information is structured. Warschauer (2003) has written about the exponential potential of online written communication. He argues that, "many-to-many computer mediated communication can draw thousands of people into a single discussion, and millions of people around the world are now communicating online" (p. 186). It has been a decade since this observation, and the variation of written communication has only increased. In fact, some scholars have suggested that this communication is not only changing our access to each other’s written discourse, but the very nature of the discourse itself at an accelerated rate. In 2001, Crystal reflected on the use of language on the internet. He begins the book by discussing the fact that many people find the internet to be a threat to language but that he sees it as having a great potential to enhance language and the creative use of language. He states, “We are on the brink of the biggest language revolution ever” (p. 275). He suggests that Netspeak, as he refers to internet language, may prove to be the preferred means of communication in the future. He concludes the book optimistically by stating, “What is truly remarkable is that so many people have learned so quickly to adapt their language to meet the demands of the new situations, and to exploit the potential of the new medium so creatively to form new areas of expression” (p. 276). A few years later, Crystal (2008) also explored the manner in which texting is changing the nature of the English language. He noted that the language in this context resembled a mix of written and spoken discourse, or something he has referred to as text-speak. He observed that texting allows people to play with language in ways that he suggests humans always have. It is safe to say that such play may encourage students to engage in the learning process and promote reflective language use. This language creativity is perhaps most possible when writing intersects with the other language skills.

### 4. The Role of Writing in Learning Other Skills

Although many language teachers address writing in isolation, many others have promoted the integration of skills (Oxford, 2001). One argument for this integration is the guidance that one skill can provide for the development of another. It is worth noting that many scholars have recognized the role that writing plays for
learners as they develop all language skills. Chapelle and Jamieson (2008) suggest that as students are engaged in writing activities, regardless of the intent of their focus, they are experimenting with language and considering their options, in short, thinking critically about how and why they are using language. This activity enhances their learning of the other language skills as well. Some ways in which these skills may influence one another may be unanticipated. Payne and Whitney (2002) observed that text chat helped students develop oral proficiency skills. It is interesting to juxtapose these findings with Crystal’s (2008) notion of text-talk. Hirvela (2004) provides an extensive overview of the research and practices related to the connection between writing and reading. He outlines research into the connection and provides pedagogical practices that can be used to promote reading skills through the process of writing instruction. He sees reading as a major obstacle that is often considered to be an isolated skill but should, in fact, be recognized for its connections to other skills, including writing. He argues that helping students understand the connection between reading and writing can help them engage in higher level thinking and understand the relationship between reader and text. Further, he notes, “whether used before, during or after reading, writing enables students to make sense of reading” (p.108). Clearly, this cross-skill influence occurs with each of the other language skills as well. Thus, it is important for teachers who are learning to teach writing to understand how they may also influence students’ overall language abilities. This influence of writing on all skills may be the most evident as teachers use technology in the classroom, given that lessons incorporating technology often provide the opportunity for teachers to more closely simulate real-world communication and negotiation of meaning. Therefore, training teachers to teach within this new, multiskilled environment will become increasingly important.

5. CALL Teacher Preparation

CALL teacher preparation has received a significant amount of attention recently. Hubbard and Levy (2006) gathered an array of perspectives on the topic. Their collection provided insight into how language teacher preparation can address the needs of a variety of both in-service and in-preparation teachers. This includes developing communities of practice (Hanson-Smith, 2006), establishing connections between novice and expert teachers (Meskill, Anthony, Hilliker-VanStrander, Tseng, & You, 2006), developing teacher autonomy through self-reliance (Robb, 2006), and establishing a fully fledged academic graduate course (Hegelheimer, 2006). Unfortunately, much of what has been investigated in CALL teacher training relates to the challenges, limitations, and other shortcomings associated with a lack of attention to preparing teachers to use technology in their language teaching. There are numerous reasons that teachers may avoid using technology in their classrooms (Lam, 2000). Teachers are often apprehensive, overwhelmed, or intimidated by technology (Kessler, 2010). Some have found that CALL teacher preparation is often not required in language teacher preparation programs, and, when it is provided, the training is often limited or inappropriate (Kessler, 2006; Hubbard, 2008). Egbert, Paulus, and Nakamichi (2002) found that even when provided with training, teachers often did not pursue integrating technology in their classes primarily due to institutional obstacles and limited expectations. Recently there have been suggestions for a baseline set of CALL skills and knowledge that should be required of all language teachers (Healey, Hegelheimer, Hubbard, Ioannou-Georgiou, Kessler, & Ware, 2008; Hubbard, 2008). These expectations presume that there is value in integrating technology in language teaching and that teachers who are not able to do so are at a disadvantage. They also recognize that CALL does not eliminate the need for teachers because teachers are necessary to provide guidance, make decisions, and structure learning activities in CALL environments (Chapelle & Jamieson, 2008). Inherent in these expectations is the idea that technology is not always the answer and that informed teachers should be able to choose when to use technology as well which technology may be most appropriate for a given task, student population, skill area, and so forth (Healey, Hanson-Smith, Hubbard, Ioannou-Georgiou, Kessler, & Ware, 2011). Suggestions for integrating these expectations in writing teacher preparation are addressed in the next section of this chapter.

5.1 Suggestions for CALL Pedagogical Preparation

One framework for preparation is that proposed by Hubbard and Levy (2006) and Hubbard (2008, 2009). In this framework, a hierarchy of technological knowledge and abilities is established. Within this hierarchy all teachers are expected to have a sound fundamental understanding of the current technological tools and associated practices related to their particular domain or area of teaching. These benchmark abilities could be considered a basic level of digital literacy. Those whose abilities extend beyond these basic skills may be CALL specialists or experts. CALL specialists include those whose expertise is focused upon a specific skill area or learning context and its relationship to the use of technology. A CALL specialist in writing may be someone who guides a group of foreign language composition teachers in their use of technology or someone who specializes in addressing the potential of CMC tools for emerging writing practices. Both of these roles would require a level of understanding and ability beyond those of the classroom teacher. Understanding the distinction between classroom teachers with a basic level of digital literacy and CALL specialists allows us to identify those skills that we can expect of all classroom language teachers. One approach to providing a cohesive overview is to examine these skills through the lens of a set of established standards.

5.2 A Standards Based Framework for Preparing Classroom Teachers

A number of recent publications have argued that all classroom teachers need to be able to use technology for their particular classroom contexts (Healey et al., 2011; Hubbard, 2009). The TESOL technology standards provide clear benchmarks for English teachers and learners in all teaching contexts across the globe. These benchmarks can be applied to the teaching of other languages as well.
Some specific examples of how these standards can be operationalized within the preparation of writing teachers are included in Table 2 along with the TESOL technology standards (Healey et al., 2008, pp. 29-40). It can be noticed that all of the goals and standards ask in-preparation teachers to begin with their language learning goal, evaluate their context, and then make sound pedagogical decisions regarding technology use.

Table 2

<table>
<thead>
<tr>
<th>Goals for Writing Teacher Preparation from the TESOL Technology Standards</th>
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<tbody>
<tr>
<td><strong>Goal 1</strong> Language teachers acquire and maintain foundational knowledge and skills in technology for professional purposes.</td>
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<tr>
<td><strong>Standard 1.</strong> Language teachers demonstrate knowledge and skills in basic technological concepts and operational competence meeting or exceeding TESOL technology standards for students in whatever situation they teach. Example: Teacher preparation courses can incorporate needs assessment surveys to identify how well a teacher in preparation understands basic technological concepts that relate to the writing classroom, including the ability to manipulate text in word processing; organize, save, and name files; use online word processing tools; or use a variety of electronic resources meaningfully.</td>
</tr>
<tr>
<td><strong>Standard 2.</strong> Language teachers demonstrate an understanding of a wide range of technology supports for language learning and options for using them in a given setting. Example: Teachers in preparation can be asked to prepare lesson plans that demonstrate the alignment between various tasks and tools, including specific examples of tools and resources in targeted use (e.g., see Chapelle &amp; Jamieson, 2008).</td>
</tr>
<tr>
<td><strong>Standard 3.</strong> Language teachers actively strive to expand their skill and knowledge base to evaluate, adopt, and adapt emerging technologies throughout their careers. Example: Teacher preparation needs to emphasize the fact that the skills being acquired during class may be limited to current technologies and that awareness of the evolution of these tools will be critical to future use. This can include examples juxtaposing previous technologies with those that are current and emphasizing that pedagogically sound use of technology relies on teacher understanding and creativity more than on specific technologies used. Example: Writing teacher preparation can incorporate discussion about ethical issues related to cultural expectations, student privacy, and copyright and plagiarism issues, including specific examples from previous practice.</td>
</tr>
<tr>
<td><strong>Goal 3</strong> Language teachers apply technology in record-keeping, feedback, and assessment.</td>
</tr>
<tr>
<td><strong>Standard 1.</strong> Language teachers evaluate and implement relevant technology to aid in effective learner assessment. Example: Writing teacher preparation courses should introduce varied technologies to assess students' writing so that teachers can align specific tools with appropriate contexts, including the use of rubrics for assessing student performance as well as the use of appropriate AWE tools.</td>
</tr>
<tr>
<td><strong>Standard 2.</strong> Language teachers use technological resources to collect and analyze information in order to enhance language instruction and learning. Example: Writing teacher preparation courses should introduce teachers to varied technological ways that they can monitor student progress and evaluate their improvement, including tracking changes in word processing and student tracking features in learning management systems (LMS). Student data can then be used to inform future instruction.</td>
</tr>
<tr>
<td><strong>Standard 3.</strong> Language teachers evaluate the effectiveness of specific student uses of technology to enhance teaching and learning. Example: Writing teacher preparation courses should prepare teachers to incorporate technology use into their overall writing assignment rubrics, including students' ability to use writing tools such as spell checkers and grammar checkers.</td>
</tr>
</tbody>
</table>

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Goal 2 Language teachers integrate pedagogical knowledge and skills with technology to enhance language teaching and learning.

**Standard 1.** Language teachers identify and evaluate technological resources and environments for suitability to their teaching context.

**Standard 2.** Language teachers coherently integrate technology into their pedagogical approaches.

**Standard 3.** Language teachers design and manage language learning activities and tasks using technology appropriately to meet curricular goals and objectives.

**Standard 4.** Language teachers use relevant research findings to inform the planning of language learning activities and tasks that involve technology.

Example: Writing teacher preparation courses should explicitly link writing and technology research findings to the practices that are introduced and discussed in class, including a requirement for teachers in preparation to construct their own links via paper, discussions, or projects.
5.4 Aligning Tasks With Tools

Often teachers identify a tool that they find comfortable or usable for a particular task and are tempted to use that tool for varied future tasks. It is important that teachers in preparation be aware that not all technology tools are equally effective and of equal quality. In fact it is important to experiment with varied task types, activities, and tools in order to gain perspective on what works best in specific circumstances. For example, synchronous CMC text chat may be much more effective when students are not seated next to each other in the same room. This kind of tool can be used outside of class or to connect students from two geographically distinct locations. Of course better understanding of the literature can inform these practices, but it is rare that contexts in the array of CALL research perfectly align with a given teacher’s context. It is also important, when engaging in this practice, that variation among writing tasks be highlighted. In some cases it may be most appropriate to consider the task first and then attempt to align a tool to the task, but often the process can be successful when a flexible and well understood tool informs the design of a task and the ultimate language learning goal is considered.

5.5 Adapt and Adapt

Teachers in preparation can be encouraged to adapt or adopt other tools to the writing classroom by providing them with opportunities to experiment with a variety of current tools. Sometimes the best tool for a task is one that is intended for a somewhat different purpose. By adapting tools from other contexts, writing teachers can unlock great potential. This is most often accomplished by utilizing convenient, familiar, or ubiquitous tools that surround us in every day use outside the classroom. Microsoft Word has become so familiar to us both in and out of the classroom that we may take it for granted and overlook language teaching opportunities that it presents. Teachers who have used the basic functions of this program for years may not be aware of somewhat recent developments, including the comment feature and tracking changes (for more on these features, see Ferris, this volume). Other more advanced features include the embedding of audio and video recordings which allows writing teachers to provide feedback in varied ways (see Ducate and Arnold, this volume). Teachers who are more inspired have customized their own Word macros that can automate feedback or at least make it less burdensome (Henninger & Tuzi, 2001).
5.6 Understanding the Role of Feedback

There are many considerations in language teacher preparation that are difficult to teach but essential for successful teachers to understand. Among these is the ability to establish rapport with students. One primary way that writing teachers and students interact is through a teacher's response to student writing. The topic of responding to student writing has received a great deal of attention over the years (Ferris, 2003; Ferris & Hedgcock, 2005; Ferris, 2010). In particular, much has been written about the role of feedback in language learning, particularly in the area of writing. Writing teachers should be prepared to use feedback in appropriate ways. Some important considerations include recognizing the difference between treatable and untreatable errors (Ferris, 2002), using linguistic devices such as hedging to increase uptake (Ferris, 1997), and recognizing the more complex influences of genre and individual preferences on the nature of feedback (Ferris, Pezone, Tade, & Tinti, 1997). Writing teachers in preparation benefit from developing an understanding of the role of feedback in the writing process and the role of the instructor in providing feedback. When relying on electronic communication rather than face-to-face interaction, it may be even more important to carefully consider the nature of any feedback or other messages exchanged with students. Careful consideration in feedback has been recognized as a critical aspect in students' emerging writing abilities (for suggestions on how to accomplish this, see Ferris, this volume). Conveying to students that you care enough to work with them throughout the writing process can influence their attention to feedback (see Ducate & Arnold, this volume). Another means of providing feedback is through the practice of peer response. With today's collaborative tools we have a noticeable increase in the potential variation of peer response practices. In order to prepare for such variation, it is important that we first understand the nature of peer response.

5.7 Peer Response

Peer response practices ideally allow students to provide one another with feedback that is highly relevant and practical for their immediate writing needs. Unfortunately, peer response has often been dismissed by writing teachers and students, but this can be the result of poor planning or implementation (Ferris & Hedgcock, 2005). Ferris and Hedgcock also outlined the benefits of peer response as well as the aforementioned criticisms as a means of introducing their eight “Principles for effective peer response” (p. 233). These principles are listed in Table 3.

Table 3
Principles of Effective Peer Response

1. Make peer response an integral part of the course.
2. Model the process.
3. Build peer response skills progressively throughout the term.
4. Structure the peer response task.

5. Vary peer response activities.
6. Hold students accountable for giving feedback and for considering any feedback they receive.
7. Consider individual student needs.
8. Consider logistical issues, including the size and composition of groups, the mechanics of exchanging papers, and time management and crowd control.

While there is no explicit inclusion of technology in these principles, they can be applied to peer response activities in any environment, technological or otherwise. Various CMC tools can be used in creative ways to incorporate these principles of effective peer response. For example, Liang (2010) investigated the practice of online peer response groups and concluded that the practice “enables students to collaboratively brainstorm, share, and review texts” (p. 57). It is particularly interesting to consider the potential for collaborative feedback in the context of these tools because many of them, including wikis and blogs, allow for text and metadiscussion about text that are easily distinguished yet interconnected. This metadiscussion allows teachers, students, and others involved in these forms of communication to explicitly discuss the language use without it interfering with the text itself. The inclusion of technology may allow some aspects, such as structuring the task, to be monitored by a LMS or other computer-based system and documented without teacher intervention (Fischer, 2007). Other aspects can also be addressed by identifying appropriate writing, course management, and communication tools. Ferris and Hedgcock (2005) provide equally compelling and useful guidelines for teacher responses. These should serve as a foundation for any writing teacher. They should certainly help to guide teachers who are seeking innovative and effective technology solutions for their writing instruction.

It is also important to consider how the use of different tools used for feedback exchanges may influence the effectiveness of feedback. In this volume, readers can find a number of reflections on this topic. Ferris (this volume) provides a clear orientation to the potential use of tools within Microsoft Word. This is a very practical way to begin to implement CALL into the writing classroom since this software is familiar to anyone in an academic context. Lee (this volume) presents an approach to using blogs as a means of providing feedback to English language learners by native-speaking experts. The easily accessible, yet private nature of a blog embedded in a course allowed students to interact without losing face. Ducate and Arnold (this volume) compare the practices of providing feedback via screen casting and the comment feature. They recognize that the medium associated with the feedback can influence students’ perceptions and utilization. It is easy to imagine numerous variations on this observation.
6. The Future of Writing is Shared

Much of the history of writing instruction had been constructed on the premise that writing is an individual and isolated activity. However, we see signs in the workplace and in the design of current Web 2.0 tools that writing is becoming a more shared experience. Teachers should consider designing writing tasks and activities in ways that provide opportunities for students to practice their writing in social contexts. We should reflect back on the creative potential for language use in these emerging contexts as observed by Crystal (2001, 2008). By encouraging and supporting our teachers to experiment in new collaborative writing contexts we are helping them prepare for a future of writing that is shared. Of course there are numerous considerations that must be made when working within such shared environments and activities such as individual or group motivation, issues of privacy, notions of ownership, and challenges to assessment. Due to the high level of student control and potential autonomy of collaborative writing activities, attention must be paid to the design and degree of teacher intervention (Kessler, 2009; see also Storch, this volume). Preparing students for the nature of collaborative writing will likely benefit them, particularly as the realities and expectations of this area of interaction evolve. Kessler et al. (2012) presented a framework for reflecting on the co-evolving nature of technology tools, their use, and pedagogical practice. We argued that, while “we do not presume to know how these technologies or pedagogies will evolve, it is important to recognize that evolution is underway and that teachers and students can and should be active participants in the process” (p. 106). The following section presents some ways that teacher trainers can begin to think about and prepare for this engagement.

6.1 Preparing Teachers for Tomorrow’s Tools

When email was emerging as a practical means of communication it was not obvious to many teachers how it might be used in the language classroom, but some began experimenting with it, largely relying on conventional classroom practices. Warschauer (1995) documented its potential and described contemporary language classroom practices contextualized within email exchanges. In the past two decades email exchanges, keypal projects, and numerous other email-based activities have taken place in writing classrooms (Bloch, 2002; Greenfield, 2003). New technologies create opportunities for teachers, but teachers who are not aware of this potential, or the availability of the new technologies themselves, will not benefit. Teachers should be prepared to critically reflect upon the current trends in writing expectations for students and to recognize how these trends have evolved over time. Similarly, they should understand that the use of tools has evolved alongside writing practices. In addition to engaging in traditional formal academic writing, teachers can encourage students to practice emerging forms of writing. Additionally, it will likely become increasingly important to prepare teachers to teach writing in courses that are delivered at a distance or otherwise wholly online. Through raising awareness of this potential, teachers would be encouraged to reflect upon their students’ changing needs and realities. This reflection can inform the construction of opportunities for writing practice in new and emerging contexts. When constructing opportunities for new writing activities, it is important to consider the issues in Table 4.

Table 4
Considerations and Critical Thinking for Writing Teachers Using Technology

<table>
<thead>
<tr>
<th>Considerations</th>
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<tbody>
<tr>
<td>- Provide students with opportunities to exchange synchronous and asynchronous written communication with experts and cultural informants.</td>
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<tr>
<td>- Incorporate varied forms of media, including images, video, symbols, text, and sounds as prompts or sources of input for writing tasks.</td>
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<tr>
<td>- Provide students with opportunities to practice writing in relation to their development of other skills (e.g., writing about their listening comprehension, vocabulary development, etc.).</td>
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<td>- Provide students with opportunities to practice writing for multimedia such as digital storytelling.</td>
</tr>
<tr>
<td>- Provide students with feedback that is accessible, timely, and actionable.</td>
</tr>
<tr>
<td>- Be able to track students writing progress. This can include tools that identify aspects of complexity, accuracy, and fluency in students writing.</td>
</tr>
</tbody>
</table>

Critical thinking for Writing Teachers

Think of writing practice that exists outside the realm of academic writing. Think critically about how existing tools might be used in innovative ways to support developing writing skills. Think critically about how emerging environments can incorporate varied writing tools. Think critically about how new tools that emerge throughout their careers can be used for writing tasks or even to encourage new writing activities. Consider how mainstream ubiquitous tools can be incorporated in the language classroom.

Specific activities that can be used to promote variation on writing development within new and emerging writing contexts are described in the following section.

7. Activities for New and Emerging Writing Contexts

With the advancement of technologies that support varied means of writing, it is important that language teachers be prepared to recognize the potential of tools that support writing development and integrate the use of these tools into institutional pedagogical practice. Activities that can be associated with these tools may not be obvious to writing teachers who are most accustomed to traditional formal rhetorical contexts. To encourage creative and engaging use of new and emerging writing contexts we can prepare teachers to participate in and construct some of the activities in Table 5.
Table 5: Activities that Promote Writing in New and Emerging Contexts

<table>
<thead>
<tr>
<th>Activity</th>
<th>Example</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Collaboration</strong></td>
<td></td>
</tr>
<tr>
<td>Create writing tasks that take advantage of the collaborative potential of social networking tools such as Facebook’s status update or Twitter’s microblogging.</td>
<td>Students could be asked to do quick shares by writing a status update in the target language at the beginning of each class or to tweet about cultural information they have gathered through searching the internet.</td>
</tr>
<tr>
<td>Create writing tasks that simulate real-world collaborative writing tasks, including the kinds of tasks that groups of professionals in workplace contexts might use to work on projects.</td>
<td>Students can create, edit, and update entries in a wiki about an aspect of the target culture or another topic of interest.</td>
</tr>
<tr>
<td>Create writing tasks for low-level writers to collaboratively construct knowledge in managed spaces, including wikis, Google Docs, and blogs.</td>
<td>Students can collaboratively construct knowledge through the collective definition of terms in a managed space, including aspects of the target culture or biographies of famous people.</td>
</tr>
<tr>
<td>Create writing tasks for higher level writers to actively contribute to real-world wikis and blogs.</td>
<td>Students whose skills are advanced can contribute to real-world knowledge bases such as commenting on culturally themed blogs or correcting errors in entries in Wikipedia.</td>
</tr>
</tbody>
</table>

| Feedback | | |
|----------|---------|
| Provide feedback in varied ways. | By experimenting with various tools, teachers can identify those that support their individual preferences for feedback exchange. |
| Incorporate language samples in feedback. | This feedback can incorporate additional hyperlinked resources or examples of related language use. |
| Provide students with varied feedback. | This feedback can include teacher or students recorded media (e.g., images, video, screen capture, etc.) as well as text. |
| Provide opportunities for feedback to establish a dialogue. | Feedback can be delivered in ways that promote student response to the feedback itself. |

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**Varied writing tasks**

- Encourage students to navigate a variety of writing genres, including text that incorporates media, hyperlinks, and other contemporary enhancements.
- Create writing tasks that engage students in creating their own videos.
- Create writing tasks that engage students in creating their own sequenced stories of images.

- Students can engage in webquests and write summaries of the information they gather in a group.
- These can be constructed from students individual and collaboratively written text as well as personal or publicly available images using readily available video editing software such as iMovie or Movie Maker.
- These can be constructed from a series of photos or drawings in word processing or presentation software.
- These can also take the form of comic strips. Software such as Comic Life can be used for existing photos, student generated images and narration, captions, dialogue bubbles, and transitions.
- These can also use sites that mimic magnetic poetry or other forms of online story creation.
- Writing tasks allow students to create graphic novels or fanfiction (see Behrenwald, this volume).
- This could include online communities with a cultural context relevant to the target language.
- Students could, individually or in groups, be encouraged to join social groups based upon common interests.
- Students could, individually or in groups, be encouraged to join fan communities (see Behrenwald, this volume).
- This can involve discourse that might normally be done over the phone, including gathering information about products or a school or a community or a tourist place of interest.

**Prompts**

- Incorporate prompts that are not limited to textual information, even if the output is intended to be primarily textual.
- Students can write in response to viewing cultural videos found on free video-sharing sites such as YouTube.
Use images to prompt students to write narration, dialogue, or description. A sequence of images can prompt students to collaboratively construct and write. Images can be gathered and organized into folders according to cultural topics or relevant tasks (or both) using free photo-sharing sites such as Flickr or Picassa.

Images can be randomly ordered for students to collaboratively construct the sequence. Images or sequences of images can incorporate language or be void of language depending on the language level of students.

These activities, while not exhaustive, can guide teachers in thinking of numerous other ways to introduce new practices within the writing classroom. By experimenting with a variety of practices, we are likely to develop a better understanding of how these tools can support writing development. This ongoing development is something that all writing teachers should pay attention to throughout their careers.

8. Challenges in Discussing the Future

Writing about technology teacher preparation—like all things related to technology—inherently restricts the author to tools and practices that exist at the moment. We need to be conscious of this just as we need to assist our teachers in preparation to be conscious of the fact that they are being prepared for a world of technological tools that have yet to be created. This is certainly a challenge since we cannot anticipate what these tools will be, how they will function, or what we can demand from them. However, we can rely upon our understanding of the past evolution of writing and technology tools. We can also rely upon the premise that if we are prepared to encounter new opportunities with curiosity, a critical eye, and a sound pedagogical purpose we can better understand the potential for future tools. While we can anticipate that the future will present us with exciting new tools that we can use for writing activities in the language classroom, including those that can automatically perform functions traditionally done by teachers, it is imperative that teachers understand these tools and integrate them into their practices (Chen & Cheng, 2008).

9. Conclusion

This chapter has provided an overview of current trends in writing practice and research across CALL contexts. Through these observations numerous pedagogical suggestions can be garnered, and some of the most salient have been presented here. The primary focus of these recommendations is related to the preparation of classroom teachers. As CALL teacher preparation becomes more sophisticated, we will likely see an increase in preparation of CALL writing specialists. Along with some insights gained from CALL teacher preparation, the extant research on writing has been used as a foundation for teacher preparation for technology use in writing instruction. Writing teachers should be encouraged to think critically about their classroom practices and the role that new and emerging technologies may play. Many additional insights can be found throughout this collection as well as in a number of CALL and second language writing sources. Transferring this knowledge into a practical approach to language teacher preparation presents a unique set of challenges and opportunities. While these suggestions are contextualized within the writing classroom, many of these considerations should be transferable to other skill areas and technologies.

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Chapter 12

The Noticing of Correct and Incorrect Forms in Lengthier Texts: An ESI Eye-Tracking Investigation

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Abstract

This chapter describes an exploratory use of eye tracking as a method for evaluating the effectiveness of peer review in second language writing. A peer review task was designed to investigate eye gaze fixation lengths as well as surface errors in two reading tasks. The purpose of this study was to investigate the benchmarks for eye fixation lengths put forth by Smith (2007) and to measure how these benchmarks could be used to determine the effectiveness of language usage. The study was conducted in a first-year English as a second language (ESL) writing class at a university in the United States. Results showed that the benchmarks for eye fixation lengths could be used to determine the effectiveness of peer review in second language writing.

1. Introduction

While the use of a variety of tracking measures (e.g., mouse click data) has been extensively used in CALL research to identify students' computer-based materials (Fischer, 2007), using tracking to monitor noticing during reading has been limited to date. According to Smith (2007), eye movements reveal the actions of the cognitive processes that occur during reading, including eye movements, such as where they place the mouse cursor or where they click. This can, as Smith (2010) asserts, lead to an understanding of the underlying mental processes. It is this concept to use eye-tracking software as a viable new data source to investigate mediated communication (CMC). While the eye-tracking data collected from ESL learners’ use of CMC, the software used in the study makes widespread adoption of this technique difficult. With prices ranging from $4,000-$40,000 eye-tracking equipment is outside the means of many teachers-researchers, hindering this approach. Yet with home-computing performance advancements and a bu