CALL Principles and Practices

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Preface

An old but popular *Calvin and Hobbes* comic strip focuses on an idea we find central to classroom technology use. In the strip, the little boy Calvin is talking to his dad. The conversation goes like this:

Calvin: If I had a computer, I'm sure I'd get better grades on my book reports.

Dad: You'd still have to read the book and tell the computer what you want to say, you know.

Calvin: Man, what's all the fuss about computers? (Watterson, 1995)

Although this comic was published more than 20 years ago, the question that Calvin poses is one that language educators must still ask. We hope that this book shows in part what the fuss should be about.

Purposes

Since the first version of this book came out in 2005, the field of computer-assisted language learning (CALL) has grown and changed. This

update is the result of some of those changes. Our intent is to place pedagogical goals before technologies, as the literature advises but is not always followed in classrooms. In revising this book, as in the original, we assume that good teachers teach well because they bear in mind certain principles about how they can best help learners to learn language. Placing these principles at the center of attention makes it much easier for teachers to concentrate on the question of what constitutes effective computer-enhanced pedagogy and why.

This book takes as its organizing principles both the system of conditions that are known to support effective language learning and the goals that a variety of standards in the field have set out for us and our students.

Examples throughout the book underscore the need to consider theory in every aspect of the teaching and learning process. Some of the points in this book we have made in other places; other we discovered during the revision process. All told, this text provides a brief picture of what CALL classrooms can be like today. Of course, that could change tomorrow.

► Organization and Content

In this book we discuss what we have found to be essential to effective CALL. Therefore, we have not

included software or hardware how-tos and tried not to duplicate what can be found in other texts on CALL. The emphasis on Web- and Internet-based resources reflects these tools' growing influence around the world. The title of each chapter reflects the focus of the chapter, while the content emphasizes the language and content to be learned. The content of each chapter includes a scenario that helps readers envision learning principles at work. After each scenario we briefly cite both seminal and current research in fields such as language acquisition, educational technology, and CALL to build a foundation for the chapter activities. The research is explained and explored in a manner appropriate to a practitioner audience. We then present tips and techniques for teachers to consider in developing CALL activities. We do not speak to one specific teaching method or technique because there is as yet no one best way; those following philosophies as different as behaviorism and constructivism can use these basic ideas about what's essential for effective CALL. Chapters provide examples for English language contexts (ESL/EFL K–adult) and content areas, but many of the ideas and principles can be applied easily to teaching other languages and content. We hope particularly that content-area (mainstream) teachers will be able to use the principles and activities with all of their students. In addition, activities and ideas overlap throughout the book, demonstrating that it is not just the technology or the language that is important, but a whole learning environment system that teachers can create with their students.

The introductory chapter defines CALL and presents

the principles and guidelines on which to build CALL practice. The first part of the book (chapters 2–3) presents ways that using computers can enhance skill learning and practice, and the second part (chapters 4–6) takes a more holistic view of CALL as it presents complementary activities for problem solving, collaboration, communication, and production. Chapters 7–10 examine other issues in CALL such as content-based teaching, teacher development, assessment, and limitations. The examples presented throughout the book span language modes, content areas, and student language levels, and they are built on the belief that language works through real activities.

The accompanying Resource Book by Jamie Jessup builds on ideas expressed within the chapter and provides additional opportunities for teachers and learners to build effective language learning environments. We have concluded each chapter with a section called "Teachers' Voices." These comments, used with permission, are taken from input by ESL and content teachers in CALL teacher education classes, in e-mail conversations, and in other forums where critical reflection about using technology in language learning and teaching continues.

► Reference

Watterson, B. (1995). *Calvin and Hobbes tenth anniversary book.* Kansas City, MO: Andrews & McMeel.

Chapter1
Principles of CALL

► Focus

In this chapter you will

- reflect on definitions of CALL
- learn about principles that influence language learning and teaching
- discover guidelines for using educational technologies
- reflect on a framework for CALL practice

▸ Defining CALL

Which of these are examples of computer-assisted language learning (CALL)?

1. High school Spanish learners e-mailing college Spanish learners in Spanish
2. Teams of elementary school students doing a vocabulary matching exercise on the computer
3. Malaysian students using a self-access computer lab to complete software- based spelling activities in English
4. Teachers creating multilingual Web pages so that the parents of their ESL learners will understand what is happening in class
5. A Russian language teacher explaining a grammar point using presentation software

If you say they are all examples of CALL, you are right. What exactly is computer-assisted language learning? Very specifically, CALL is *software tools* designed to promote language learning (ICT4LT, 2001), but CALL can be looked at in broader ways, too. Twenty years ago, Levy (1997) described CALL as a *field* that covers "the search for and study of applications of the computer in language teaching and learning" (p. 1), and this definition still applies. Most simply, it means using chip-based technology to support language teaching and learning in some way. This definition applies to all languages, skill areas, and content.

Educators regularly introduce new terms to describe CALL, demonstrating that they are still exploring its boundaries and clarifying its components. Labels include *computer-enhanced language learning* (CELL), the more general *technology-enhanced language learning* (TELL), and specific applications such as *computer-based language testing* (CBLT) and *computer-supported reading instruction* (CRI). There are other ways to look at CALL, too. It began as software run on mainframe computers to

provide learners with drills and other language practice. Since then, CALL has come to include many different technologies: laptop computers, personal digital assistants (PDAs), digital audio recorders, wireless Internet access, local area networking, virtual environments, and more. It has expanded from using individual drill software to using the Internet and even virtual reality as a medium to support native and nonnative speaker interaction.

Some authors have attempted to explain CALL by dividing its processes and software packages into categories. For example, some have described CALL according to what students do (fill in the blanks, tutorials, word processing, virtual or augmented reality), some according to the language skills that it addresses (listening software, reading software), others by where it is used (home, office, school, lab), and yet others by the philosophy that underlies its use (e.g., Warschauer, 1996, categorized it as behaviorist, communicative, or integrative). Each of these definitions and categorizations is useful and correct in its own way. Fortunately, in this confusing assortment of terms and tools, three themes emerge:

1. CALL is focused not on technology but on language learning. The words *enhanced* or *assisted* indicate that technology only facilitates the language learning process. Effective CALL educators avoid putting technology ahead of learning in their classrooms (in other words, they try not to be *technocentric* in their thinking). A clunkier but more accurate term for using technology in language learning might be *language learning with, though, and around technology,* reflecting the true position of language in such activity.
2. CALL occurs in many contexts and with many diverse participants. Therefore, practitioners need to

be prepared to meet a variety of needs.
3. CALL pedagogy can be grounded in theory and practice from a number of fields, especially applied linguistics, second language acquisition, psychology, and computer science.

Why so much fuss over defining CALL? Like the computer, the book and the chalkboard are important tools in language learning classrooms, but educators do not hear about *book-enhanced language learning* or *chalkboard-enhanced language learning*. However, when these tools were first introduced, they also caused controversy. Books, for example, were thought to damage memory. It is only natural that a tool as new, complicated, and powerful as the computer would cause an even bigger fuss. When teachers and learners have accepted computers as just another learning tool, as they have accepted the book, practitioners in the field will worry far less about how to define CALL. In the meantime, this text defines CALL with a set of practical guidelines to help teachers and learners understand and implement CALL in language classrooms.

▸ Research in CALL

Although CALL has been an acknowledged field for almost as long as the computer has been available, research that specifically addresses CALL issues has only begun to take on the rigor and effectiveness that both teachers and researchers need. Educators' views of what CALL is and what it should be have evolved, and researchers have developed new research designs and methods that allow them to investigate complex environments that include technology. Much of the research to date is still anecdotal; it consists of narratives from teachers, students, and other stakeholders about what happens in CALL environments. Researchers have also conducted empirical studies of

individual tools or discrete language items, but many have commented that applying this type of research to CALL classrooms is problematic (see, e.g., Egbert & Petrie, 2005). Although the benefits of using technology in language classrooms have been widely accepted (Lui, Moore, Graham, & Lee, 2003; Stanley, 2013), the literature so far mainly reveals that technology can inspire positive attitudes toward technology in those who use it. (For excellent overviews of the literature, see Basena & Jamieson, 1996; Farr & Murray, 2016.) However, CALL research is filling these gaps. In the meantime, CALL educators can employ research-based conditions, standards, and principles as they work to use computers as effectively and efficiently as possible in language classrooms.

► Principles of CALL

In this text, the basis for using technology to support language learning comprises four central components:

1. Language learning principles, which overlap with
2. Task engagement principles, which are included in
3. The Teachers of English to Speakers of Other Languages (TESOL) technology standards for teachers and learners (Healey, Hanson-Smith, Hubbard, Ioannou-Georgiou, Kessler, & Ware, 2011), which address
4. Guidelines for technology use in educational settings.

These four components are explained below.

► Principles of Classroom Language Learning

Any language lesson should focus on what is known about how languages are learned. The salient principles of language learning include:

Comprehensible Input

What we know is that language learners need a lot of comprehensible language input (Ellis, 2008), and that this input is generally effective for learning when it is just above the learner's current level of understanding. Although some teachers (and learners) believe that non-native speaking peers do not provide useful input for learners, negotiation with other language learners in the target language may be at precisely the right level for beginning students. In more advanced stages of learning, students should have access to sympathetic fluent (not necessarily native) speakers who are willing to adjust their language to the students' ability.

Output

Learners need multiple forms of input *and* a variety of ways to express themselves as they try on a different language and culture and possibly even a new way of approaching knowledge and the learning process. Although many educators still focus on comprehensible input as the most important element of language acquisition (e.g., Krashen, 2004), the SLA research is clear that opportunities for meaningful output are just as important (see Ellis, 2008, for a list of contributions that output can make to language acquisition). The focus here is on the term *meaningful*; the research shows that activities such as uncontextualized grammar drills and error correction are often not worth the time spent (Folse, 2016; Reber, 2011; Ur, 2016). Studies show that meaningful output can help learners notice the forms they are using and thereby support language fluency and accuracy (Leow & Donatelli, 2017; Schmidt, 1990).

Noticing

Noticing means an explicit focus on language forms and their related functions and meanings. However, too much focus on form in the format or drills or lectures, or a focus on form that is not meaningfully integrated into the tasks at hand, can make it difficult for learners to actually use the forms. Focusing explicitly and consistently on grammar drill and practice may actually work against some students' natural learning tendencies (Pinter, 2017).

Social Interaction

Although individual practice (e.g., in homework or as flashcards) may help learners master certain elements of grammar or vocabulary, more effective learning takes place when learners can use language actively and creatively with other people, or social interaction. Anyone who has struggled to learn a foreign language has probably had the experience of successfully completing grammar exercises but then being totally tongue-tied when trying to form a simple request in the target language. To prepare learners to perform in authentic settings, they must be allowed to practice in social settings.

Feedback

Language learning is supported by feedback, which includes scaffolding and explanation rather than just encouragement or the location of an error. Scaffolding, as defined by Hawkins (2008), is relevant support that is provided by "a more capable other" who knows the student's learning goal and how the student might reach it. In other words, scaffolding should be tailored to the learner's needs to help the learner advance to a higher level; important to effective scaffolding is personalization, because not every student needs the

same scaffold in order to learn. Likewise, some learners need much more support and guidance, and sometimes a very different approach than others, to enhance learning.

► Task Engagement Principles

Having opportunities to learn language, even those where all of the components are supported, does not mean that students will learn. In addition to including language principles, classroom tasks must also be engaging so that learners will take the opportunities offered to them.

Although the literature proposes a variety of constructs that comprise task engagement, it indicates that overall the most salient features of an engaging task are that it is/does the following:

- Authentic (learners perceive it as connected to the real world)

For our purposes, an *authentic task* is one whose topic, process, content, or other element learners perceive they will use outside of class in their real world or that parallels or replicates real functions beyond the classroom. Students who perceive a task's *how* and *why* will also be more attentive and more motivated to learn. Even the much maligned grammar drill and practice can be engaging if learners see it as enabling them to use language outside of the classroom.

- Interesting (one or more aspects of the task hold deep interest for learners)

Input that is interesting and meaningful is more likely to become actual language intake and be processed by the learner than input that is uninteresting and unconnected to students' lives. Many teachers do not know what their students are interested in, but they can find out and integrate the ideas into tasks.

- Provides opportunities for social interaction (conversation, cooperation, and / or collaboration with peers, teachers, experts, and others)

  Social interaction is one of the foremost learning principles across all kinds of learning, and it holds special significance for engaging language tasks because it is a main feature of both engagement and language learning. Important to both is that the interaction is based on two-way give and take rather than one way where either only one person is talking or no one is listening and responding. To date, technology does not provide a creative, responsive interactive; however, this feature is on the horizon.

- Supports challenge/skills balance (includes choices of challenge)

  The amount of stress or pressure that helps students learn effectively is different for each person. Language learners should feel comfortable enough to take risks with the target language, but they should not be put to sleep by overly simple-minded tasks and exercises. Educators can create optimal stress (*eustress* or good stress) by matching the degree of difficulty, or challenge, to the students' skills (Cziksentmihalyi, 1990), giving them enough difficulty to keep their attention while providing them with tasks that are possible to complete.

- Supports autonomy/structure balance (includes choices of task aspects)

  Many language classes push learners along a rigid schedule requiring a certain number of book chapters, exercises, and essays in a given amount of time. This teacher-directed syllabus may be effective for some students, but it may ignore the needs of others. Allowing learners to control some aspects of a task can make them much more likely to engage.

- Includes effective scaffolding (a range of resources, including just-in-time feedback)

Like social interaction, feedback is an important aspect of both language learning and engagement. Some students work more slowly than others, and some need more or less guidance for different tasks. Giving students the right amount of time and administering appropriate feedback are among the most difficult but also most important conditions to meet.

A teacher can shout "listen to me, listen to me" to try to get students to pay attention and learn (we have seen this happen), but giving students an interesting, authentic task that they have the skill, support, and time to complete is much more likely to be effective for learning.

► TESOL Technology Standards

Additional guidance for planning, implementing, and assessing CALL comes from the *TESOL Technology Standards* (*TTS*) for language teachers (*TTS-LT*) and language learners (*TTS-LL*) (Healey et al., 2011). These standards present concise, evidence-based guidelines for teachers to consider what they and their students need to be able to do with and through language and technology.

The *TTS* provide four evidence-based goals, along with related standards, performance indicators, and contextualized examples, that can guide CALL task development. The three overall goals are presented in Figure 1.1.

Goal 1: Language learners demonstrate foundational knowledge and skills in technology for a multilingual world.
Goal 2: Language learners use technology in socially and culturally appropriate, legal, and ethical ways.
Goal 3. Language learners effectively use and critically

evaluate technology-based tools as aids in the development of their language learning competence as part of formal instruction and for further learning.

Figure 1.1. Learner goals from the *TESOL Technology Standards* (Healey et al., 2011).

Further, the *TTS-LL* address the call for language learners to acquire 21st-century skills (P21, n.d.) that include:

- Knowledge acquisition (e.g., organizing, recording, understanding)
- Problem-solving (e.g., defining, selecting, evaluating)
- Critical thinking (e.g., drawing inferences, synthesizing, integrating, distinguishing)
- Production (e.g., creating, developing, transferring)
- Inquiry (e.g., asking questions, translating, developing research skills)
- Communication (e.g., communicating, participating)
- Creative thinking (e.g., thinking differently, applying).
- Digital literacy (e.g., information literacy, media literacy, Information and communication technologies (ICT) literacy

The standards do not speak to specific tools because tasks should consider the range of possible CALL technologies. In other words, the principles and standards can be implemented using many different techniques and tools, and some of these will be presented throughout this text. As you read the following real-life examples, note how the projects meets the principles and standards for CALL.

► ***Example 1***

In developing a systems analysis and design project for precollege international students in an intensive English program (see Egbert & Jessup, 2000), the teacher focused on students' interests (they were college-bound business majors), their needs (to learn the vocabulary and culture of U.S. business, to work on all four language skills), and their abilities (academic language competence ranging from intermediate to advanced*). The students were asked to build Web pages for organizations in the community. They had the opportunity to choose a client from among several that the teacher had lined up ahead of time or to find one themselves. During the project, learners received language input through activities such as participating in interviews with their clients, reviewing Web pages of organizations similar to their clients', talking with their teams and their class, and listening to technology lectures.

Learner teams interacted with their native-English-speaking clients at least three times—during an initial interview about the organization, an interview after the initial page development, and a final review after the project was completed. The teacher organized the teams and provided a loose structure for the activity, but learners controlled their work process and the design of their Web pages. The teacher also led workshops for the project's technical aspects and provided support for learning difficult concepts, vocabulary, and skills. The teacher and the class provided feedback on the initial designs and the completed projects. Throughout the project, learners used language for activities such as summarizing their interviews, preparing graphic layouts, and compiling a final portfolio of their projects.

This computer-enhanced language learning project integrated the principles and standards in many ways. The task provided useful skills, content, and contacts for learners in an authentic, real-world setting. Learners interacted with peers and with native English speakers who were an authentic audience because they, too, had a stake in the outcomes. Learners had many different ways to express themselves and many sources of language input— listening, speaking, reading, writing text, and creating graphics. They worked with flexible timelines, technical support, and comprehensible feedback from clients, peers, and the teacher. Furthermore, the task provided a number of opportunities for learners to make choices, and they always had a reason to listen to each other. In addition to integrating the principles for effective and engaging language learning, Example 1 also demonstrates appropriate uses of technology in language teaching and learning.

► ***Example 2***

Learners in an elementary school in an EFL setting were working in small groups studying vocabulary that they had to know for a quiz. Rather than having them memorize the spelling and definitions of the words by recitation, as they usually did, the instructor had taught the students to use the *Crossword Generator* (2018) and other tools from ESLactivities.com. The students used the software to create word puzzles that they and their peers could use to practice the focus vocabulary. Although crosswords were the most popular, the students also felt that the Hangman and Bingo puzzles that their classmates had made were helpful for learning vocabulary.

Instructors may not be able to choose their students' goals, but they often have wiggle room in how these

goals are met. In the setting described in Example 2, while using the software and the products of their computer work, the students were thinking intensively about (noticing) the vocabulary, working for and with an authentic audience (their classmates), interacting socially, and receiving feedback from peers and the teacher. Students also had choices about which puzzle type to make and how they would define the vocabulary words. This simple change in the way this task was structured made vocabulary learning more fun and motivating for the students and it proved an effective language experience.

► Guidelines for Using Educational Technology in Language Classrooms

Providing learners with tasks that focus on language and engagement is crucial to CALL, but it is only part of the process. When designing instruction for CALL contexts, teachers must also consider how to use technology so that it supports effective learning. The five guidelines described below, compiled and summarized from the educational technology literature, are similar to those for general educational technology and mainstream classroom settings, but they may be applied differently in language learning contexts. Computer support that is considered effective in the language classroom may differ considerably from that in a music or history classroom, where language is not the focus. Nonetheless, all of these guidelines are important components in any classroom where language is central.

1. Use technology to support the pedagogical goals of the class and curriculum.

Teachers using computer labs and even class laptops

are often assigned a specific day and time that their class will use the technology, regardless of whether it fits into the teachers' current learning plan. Admittedly, administrators have a duty to make sure that resources are distributed fairly and that they are used as much as possible, but they are often less concerned with how well the technology supports learning. Rather than designing instruction to use the technology and to learn technology skills (a technocentric approach), the technology use should be subordinated to the learning goals. In other words, teachers should not use the computer simply for its own sake.

2. Make sure the technology is accessible to all learners.

Because learners are individuals, CALL activities should address more than one type of intelligence, style of learning, and set of background experiences. The technology should be used to address as many of the learners' needs as possible and be useful for a variety of instructional purposes. For example, some students prefer visual activities and others prefer verbal ones; hence, if it is not important which way the content is presented, technology that allows learners to choose whether information is presented through pictures or written text would meet more students' needs than technology that does not offer learners a choice.

3. Use the technology as a tool.

The computer cannot actually serve as a teacher, because it is not intelligent or capable of individualized, creative thought or feedback. Turing (1950) suggested that a computer could be deemed intelligent if it could

fool someone into thinking that a person rather than a machine were responding when it is asked questions. This is known as the *Turing test.* Technology that passes this test is not yet available in schools, although Google Assistant and other such technologies based on artificial intelligence are being developed rapidly (see https://www.youtube.com/watch?v=2V6NHKmfnW0 for an example). The most useful way to look at technology is as a tool that supports learning in a wide variety of ways and *not* as a teacher.

4. Use technology effectively.

Effective means that students learn language better or faster using the technology than they would have using the tools that would ordinarily be available. Even in the mundane area of grammar drills, for example, the classroom teacher can provide a limited amount of feedback to each learner because only one student at a time can answer a grammar practice exercise and receive the teacher's assessment. By using a grammar software package that all students can access simultaneously, however, each student can obtain instant and appropriate (although not creative) feedback. In this case, the grammar software might provide more effective grammar practice than the teacher could in the classroom. CALL technology can perform functions previously undreamt of in the classroom, which is why CALL users are so enthusiastic about it.

5. Use technology efficiently.

Efficient indicates that technology accomplishes learning goals with less time and work for teachers and learners. For example, a listening program on a

computer can instantly replay a passage while an older technology, such as the audio tape, may waste the students' time because it requires rewinding and hunting for the right segment many times. Another example is simulation software that enables the computer to keep track of thousands of calculations that affect the outcomes. Using this software, the learner can focus solely on the language and content, while, in the background, the computer remembers scores, locations on the screen, turn taking, timing, and so on.

Language teachers designing CALL tasks should consider these guidelines; how these guidelines play out, however, will differ according to not only the course's content, but also to other contextual features such as grade level, student proficiency level, and curricular goals. Although the idea is 20 years old, completing a WebQuest (Dodge, 1998) can be one effective way to use the computer for language learners across contexts. It uses two of the most powerful electronic tools currently available: the Internet and the word processor. A WebQuest is an inquiry-based task that uses authentic Web and non-Web resources to transform knowledge in some way. Each learner has one or more roles and is actively receiving and using language throughout the task. Example 3 shows how a group project can enable all learners to participate.

► ***Example 3***

In Cohee's (n.d.) *Wandering the World WebQuest* for ESL students, learners are placed in teams and asked to develop an itinerary for a trip with their teammates. They are to prepare travel plans for New Delhi, Mexico

City, and Beijing. Within each group, one member is responsible for figuring out what to pack, one for deciding how much and what kind of money they will need, and the third for choosing interesting tourist sites. Combining all the information they find, team members negotiate the order in which they will visit these destinations, what they will pack, how much money they will take, and what they will see. After completing their itinerary, teams write postcards home from each place they "visit."

In this example, learners are immersed in the language throughout the task; the Web sites they visit on the Internet will be written in the target language and will provide both textual and graphical support (and possibly also musical enhancement) for students with different learning preferences and abilities. Students negotiate meaning with their teammates while solving a problem, in this case, seeking information and organizing it into an itinerary. They communicate and receive language input both orally, as they compile team information, and in written form, as they write their postcards. In addition, giving each team member a different role to play can help to keep learners constantly on task. The students have easy access to information and can interact immediately with an authentic audience appropriate for their experiences and language level. Using these technology tools is appropriately efficient and highly engaging in ways that book research using pencil and paper cannot match for most students. Under these conditions, using CALL would likely enable effective language and content learning.

► Conclusion

Standards, principles, guidelines, criteria, definitions—it seems that teachers have much to think about. However, the principles, standards, and guidelines overlap, which suggests that using technology for language learning relies on certain fundamental principles and that choosing one set of standards, conditions, or guidelines as a foundation for designing a CALL activity might help teachers to meet many of the others. In this text, the language learning principles form the basis of every task, while task engagement principles provide the grounding for discussions of both theory and practice. The 21st century skills provide a focus for each chapter, while the TTS-LL provide concrete objectives for examples. Tips and techniques to help teachers meet all of these guidelines are discussed in each chapter.

► Teachers' Voices

The fact is, technology does mess up and sometimes my whole lesson goes down the drain because things aren't working the way they should. I think you have to be aware and have a back-up plan in the beginning . . . what will I do if things don't go as planned? I'm amazed how flexible my students can be and how willing to try . . . [and] try again.

I think one of the reasons I have felt overwhelmed with the use of technology in the classroom is that I would think about how to use the technology versus how to best integrate technology into the learning process. By starting first with the goal or standard I want my students to master and demonstrate their learning, I can

now better see how to integrate a variety of methods to teach the concepts, and for students to demonstrate what they learn, technology being one of the methods.

Unfortunately, technology goals are often tacked on rather than infused into content-area curriculum goals. While there are specific technology goals established by a technology committee, there needs to be ownership over who will be responsible for addressing these goals.

When deciding whether or not to use software, I think it is important to evaluate if technology would be better than other methods, such as hiring an aid to help the students or having native English speakers work with English language learners. I do realize that technology is a wonderful creation, but not all students work best with a computer screen.

I think that technology provides another medium for students to express themselves—by showing their work or interacting with concepts/content through the computer. For those students who aren't solely auditory or visual learners, they can go to a computer and often engage in multiple forms of intelligence and learning styles (through multimedia).

Maybe you can help answer this question for me. In the chapter, one of the principles or guidelines stated that if the computer doesn't support learning, it shouldn't be used just to be used. I completely agreed with this statement as I read it, but later began to reflect upon when it wouldn't be used to support learning. For example, if all students are doing is just playing around on a computer, aren't they still meeting some of the

standards for technology, by just learning how to operate and work with a computer? True, it would be better if students were also doing something with content or language learning at the same time . . . but, still, even if all they are doing is exploring how a computer works, aren't they still learning something valuable?

I agree that exploration and practice itself is a task that will facilitate future use of the computer for students in general. I believe that teachers will be the ones to guide the children through the process of familiarizing themselves with the "how" and "why" things work. At the same time I agree that language learners should feel comfortable enough to take risks . . . but they should not be put to sleep by overly simple-minded tasks.

Computer access or no computer access, students first need to know how to ask questions that will get to meaningful answers. Even if we don't have computers for all our students all the time, we can still teach these skills.

You can't force curriculum to relate to a learner's life, but you can use the learner's life to reinforce curriculum.

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* Some ideas in this chapter were taken from Egbert, J., & Abobaker, R. (2018). Opportunities for engaging young English language learners through technology use. In N. Guler (Ed.), *Optimizing Elementary Education for English Language Learners* (Chapter 9). Hershey, PA: IGI GLobal.
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Chapter 2
Developing and Practicing Reading and Writing Skills

► Focus

In this chapter you will

- reflect on the benefits of using computers for reading and writing
- learn techniques and guidelines for developing student reading, writing, and grammar skills
- explore software, websites that emphasize student reading, writing, vocabulary, and grammar mastery

As you read the scenario below, think about the impact that using technology can have on student skill learning.

In the computer lab at Franklin Elementary School, Mr. Gilchrist is helping his fifth- and sixth-grade ESL students work independently on developing their reading and writing skills. He has conducted many assessments of and with his students, and he and each of his students have developed goals and tasks for the lab time. Today, Rodrigo, a Spanish-speaking student who has not yet developed English language literacy, is working with the Spanish version of Duolingo (2011) to develop basic English vocabulary. As he works with the tasks in the program, he notes important words in his vocabulary journal. He will later add these words to his personal English dictionary. Sara, an Iranian student who needs to improve her spelling to meet grade-level targets, is playing a game from PBS Kids called Princess Presto's Spectacular Spelling Play (2018). After she takes the quiz at the end of the current unit, she reports her progress to Mr. Gilchrist, and together they make a plan for how she will use her new spelling words in her writing. Oleg, a Russian student, is learning how to use writing strategies by using the school version of Starter Paragraph Punch (2018) to complete a paragraph. Sasha, from Ukraine, and Gisela, from Peru, are working together to improve their writing organization by outlining their cooperative story in Kidspiration (2018) on school Chromebooks. Danny, a Somali, listens as the computer reads Mercer Mayer's *Just Me and My Mom* (2001) and shows Danny which words it is reading. Other students work on reading pace with *Accelerated Reader* (2017) and phonics development with *Phonics Genius* (2017). All

students in the lab are working individually or in pairs on tasks that will help them meet the skill goals they have set for themselves. Mr. Gilchrist works with individual students who have questions or need extra help and makes informal assessment notes using *Classdojo* (2018) which is installed on his iPad c as he observes the activity in the lab.

►Overview of Reading and Writing in Language Learning

Many variables play a role in reading and writing achievement. Among the most important are authentic audience, knowing a first language (Ernst-Slavit & Mulhern, 2003), and schema (McVee, Dunsmore, & Gavelek, 2005; Sadoski, & Paivio, 2013). Goals for reading and writing include speed, accuracy, and comprehension, and skills include summarizing, understanding the main point, identifying how a reading or writing is organized, evaluating how well a writer supports his or her argument, using strategies to understand unknown vocabulary, generalizing, using sight words, predicting, and drawing conclusions. In writing, the popular 6+1 trait writing framework (Northwest Regional Educational Laboratory, 2016) focuses on content, organization, voice, word choice, sentence fluency, and conventions such as proper spelling and grammar.

As was mentioned in the first chapter, most important for skills development is noticing, comprehensible input, meaningful output, social interaction, and feedback. These principles can apply to reading and writing as well, and technology can provide various ways to support skill development. For instance, having the students use an online fanfiction site (such as fanfiction.net) to write can support their skill development.

In online fanfiction communities, students can continue, interrupt, and reimagine stories they like (Jamison, 2013). This task can expose them to an international audience's writing pieces about the same stories (comprehensible input) and give them means to express themselves (output). Furthermore, they can receive comments from other community members (feedback) and communicate with them (social interaction), which can potentially make them aware of the language forms (noticing). In addition, this task supports engagement principles. The students can choose stories (autonomy/structure balance) which are connected (authentic), meaningful (interesting), and optimally stimulating to them (challenge/skill balance). Likewise, they can receive and provide each other with feedback (scaffolding) through different technological forms of conversing and collaborating (social interaction) around the task.

Other chapters in this text integrate reading, writing, and other language skills and modes for purposes such as communicating, problem-solving, and producing. This chapter focuses on the skills involved in reading and writing and on how to learn/practice those skills using a computer. Although educators are still debating whether skills learning or a whole language approach is more effective, most agree that mixing these approaches is effective for language learning because it addresses a variety of learning styles and focuses on both fluency and accuracy (Freeman & Freeman, 2000; Gibbons, 2002; Stubbs, 2014). Language programs vary widely in how they treat language skills, but many programs around the world have a strong skills base. Learners in these and other programs often find grammar and other discrete skill learning an authentic part of language learning.

Regardless of how the balance between the whole

and parts plays out in your classroom, if you want to teach reading and writing skills (and the grammar, vocabulary, and pronunciation involved in them) to language learners, computer technologies can certainly help. As Godwin-Jones (2013) notes, technology use can support language learning in a number of ways:

> The integration of technology into language learning and teaching might seem to have reached such widespread use that no arguments need to be made in its favor, with the challenge being to figure out which of the many technology options are most helpful to student learning. (p. 15)

Although skills software has traditionally provided uncontextualized, fill-in-the- blank type drills, much has changed in the past decades and more variety in skills learning is available today (Chinnery, 2006; Golonka, Bowles, Frank, Richardson, & Freynik, 2014). Skills tools currently take many forms, such as applications on smartphones and tablets, multiplayer games, and virtual learning environments, and they can support many activities, as evidenced by this chapter's opening scenario. Newer software programs offer media-rich examples and integrate effective scaffolding to help students understand and retain skills. These current and emerging tools can use hypertext, or text linked nonlinearly to other text, to offer learners multiple paths into the text, which Cary (2000) sees as crucial for learning. The vast number of Internet resources is also a major advantage for skills teaching; for example, websites and software can provide a variety of easily accessible text types and articles written in numerous

genres at a wide range of readability levels.

Access to these technologies can also provide texts and instructions in different languages, helping learners to build literacy foundations in their first languages, and teachers are more likely to find something to pique learners' interest in the wide variety offered online than in the small preselected set of readings offered in printed textbooks. Tools such as these can help to individualize learning, thereby giving students more opportunities to control their learning through what they see as authentic tasks.

►Supporting Reading and Writing

The following two instructional techniques support not only reading and writing, but also language learning in general:

1. **Provide opportunities for differentiated learning to benefit students at all levels.**
   Encouraging students to work at their own level presents effective challenge and thereby supports the development of skills (Csikszentmihalyi, 1997, 2014; Egbert, 2004, 2005). Differentiated learning does not, however, imply that students should always work alone. The needs of individual students can be provided for in many ways while they work with groups or the whole class. Teachers can begin by assessing student needs in a variety of situations, as Mr. Gilchrist in the opening scenario does continually.

2. **Let students, not the tools or texts, determine authenticity.**
   In recent years, the second language literature has

advocated using authentic materials for teaching, which typically means using materials made for a native-speaking audience. The idea behind using such texts is to motivate students to study and to expose them to real language. However, this definition of authentic materials sometimes contradicts the definition outlined in chapter 1; authentic is whatever materials, topics, and processes the students perceive as useful for their use of the target language outside of class. If students do not believe that a local newspaper (usually considered authentic material) is useful to their lives or their learning, the fact that it was written for a native-speaking audience does not make it authentic to those students.

In the chapter's opening scenario, Mr. Gilchrist's language learners have the opportunity to work on tasks that they chose based on their interaction with the teacher. Although this is difficult to accomplish in large, teacher-fronted classrooms, it is still possible to provide students with feedback through computers and/or design computerized tasks to support the learning process. Students in Mr. Gilchrist's classroom were motivated because they were working on areas that they found personally relevant (authentic) and challenging.

► Tips for Designing Opportunities for Skill Development

Here are two more important tips for designing activities that can help students develop reading and writing.

1. Students must be taught learning strategies. This idea is mentioned in other chapters, but here it

pertains specifically to skill learning. Strategies such as discerning patterns, using context clues, word analysis, guessing, and deducing are effective at helping learners reach reading and writing goals (Anderson, 2002; Cohen, 2014; Oxford, 1994; Phillabaum, 2007; for guidelines and sample lessons, see Harvey & Goudvis, 2007). The use of concordancers (Flowerdew, 2015) or software that reads through texts and lists incidences of chosen words in their context, not only helps English language learners to better understand how to use grammar but can also help them to practice formulating rules from examples (deduction). Figure 2.1 presents an example of concordance data from *Corpus Concordance English* (version 8) (https://www.lextutor.ca/conc/eng/).

2. Students should be exposed to extensive reading and writing. The age-old adage that students learn to read by reading still holds; students can improve their skills through contextualized practice. The Internet can help with this task, for example, by exposing learners to other learners at their levels with whom they can exchange messages and discuss readings, and multimedia/multimodal stories provide both audio and video exposure to text. Teachers can adapt computer-based materials and texts by adding external documents (Egbert, 2001) that help students notice conventions or by following suggestions to adapt such activities as *WebQuests* (see, e.g., Schwarz, & Leibold, 2015). Online fanfiction communities, mentioned above, can also provide students with various practices

(e.g., fansubbing, that is, amateur subtitling of movies) which could support reading and writing development (Sauro, 2017).

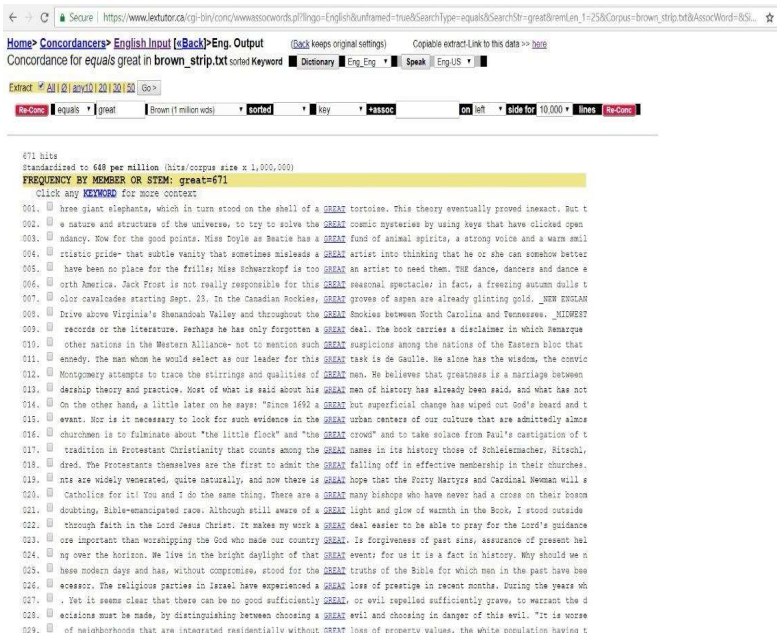


Figure 2.1. Example of concordance data from *Corpus Concordance English* (version 8)

► Evaluating Websites and Software for Reading and Writing

Many of the activities in other chapters throughout this text support reading and writing. These activities also meet the theoretical framework of the book developed in the first chapter. However, choosing appropriate activities from among the incredible number of possible resources, programs, applications, and websites can be a challenge. Kessler (2017) notes that 'even for those who are inclined to experiment with emerging technologies, it can be

challenging to identify which resources, tools, or websites may best fit a particular lesson, activity, or goal" (p. 205). Therefore, after identifying sites and programs that might help them meet their instructional goals, teachers can follow several steps. First, when using websites either as a teacher resource or part of instructional materials, make sure that the site is published by an association or organization that is trustworthy. Many teaching organizations and schools have websites with great suggestions, materials, and links. Check to see when the site has been updated by visiting it regularly, and look through it carefully for biases or other problems. For example, a safe smartphone application you might have found effective in vocabulary development is now showing advertisements to users as a way to earn money, and those ads might not be safe for your students. Also, if students will go to the site, make sure that the language level is appropriate or that they will have help if needed. For software, get a full demonstration first. If your school technology leader or a colleague has the program available, ask him or her to model it for you and to explain how they use it. If the software is not available, companies like Tom Snyder Productions will send teachers working copies of their software for preview. Reading the software is not enough—software authors and publishers have different ideas about what constitutes contextualization in terms such as grammar in context, for example, with context ranging from individual unlinked sentences to authentic reading passages. The definition and implementation must suit your goals.

Second, after choosing likely sites or programs, teachers should evaluate them as closely as time and effort

allow. (If time is an issue, complete one or two per week; share with colleagues; let students do some.) There are many different checklists and guidelines for evaluating these resources, based on cost, structure, technical features, or other characteristics. Because this book advocates using software for many purposes, including some for which it was not originally intended, it calls for a slightly different view of evaluation from other guidelines. Assuming that the cost is right and the technology will work in your school or program, then, like Hubbard (2006), you can evaluate the software based on feasibility and quality. Most important are the following factors:

1. **Goals**: What can the software or website do (not what it can't), and how does this meet pedagogical goals?
2. **Presentation**: How does the software do it? (Does it introduce or practice? Is there context? Are there exercises, quizzes, multimedia presentations, something else?) Is this appropriate for the students and goals?
3. **Appropriateness**: How will students be able to use the software to meet goals? (Can students understand it? Does it provide appropriate examples and scaffolds? Is the level appropriate?)
4. **Outcomes**: What do students produce with only the software or website? What could students produce with additional documents? What other outcomes are

possible?

5. **Evaluation**: What kind of appropriate feedback and evaluation does the software or site offer?

6. **Notes**: Add notes about what else is important to know about the technology for your context. Then balance the results to decide if the software or website is useful for your instruction.

This evaluation plan is used in the next section to describe some websites and software programs that teachers might consider for reading, writing, and grammar learning and practice.

Website Examples

Grammar Safari (D. Mills & Salzmann, n.d., https://www.merlot.org/merlot/viewMaterial.htm?id=88394)

Goals: Help students collect examples of grammar points. Useful for inductive grammar learning.
Presentation: Illustrated instructions describe how to use Web browsers to search for terms. It has no preset search items. The application has a help center which can be consulted for different word processing procedures, such as spell checking, cropping, tables, etc.
Appropriateness: This is for intermediate to advanced students who can use inductive reasoning, or who have access to some strategy training. Graphics and layout help with understanding the instructions. Help is provided on how to use browsers and which to use for specific goals.
Outcomes: Depends on browser and search—could

be a list of the item, a document in which the *find* capability can be used, or an exportable text. Typically not the same as a concordancer.

Evaluation: None.

Google Docs (Google Inc., 2018, http://docs.google.com)

Goals: Help students write and collaborate on writing documents.

Presentation: The application uses a variety of word processing tools to help students craft their documents.

Appropriateness: *Google Docs* can be used by students regardless of their language proficiency level. The application uses familiar editing tools used in other word-processing applications such as *Microsoft Word* and *Open Office.org*. The help menu provides instructions and scaffolds on different world-processing needs.

Outcomes: The students can produce written documents using a variety of elements such as text, graphs, tables, charts, etc. The students can also collaborate with other students, teachers, and colleagues at real time to develop and edit a joint writing project. The application also uses speech-to-text technologies to relieve writers from typing.

Evaluation: None.

Newsela (Newsela, Inc., 2018, https://newsela.com)

Goals: Provide students with appropriately leveled authentic reading news texts in a variety of topics and genres. The application is meant to create an engaging reading experience for students by giving them authentic news items and the autonomy to choose texts based on topic, difficulty level, reading skill, and language.

Presentation: Reading passages are provided in 5

levels of complexity, which can be filtered based on Common Core State Standards (CCSS, 2010), reading skills, and language (English and Spanish). The readings also come with comprehension questions (quizzes and writing prompts), and the option to annotate. The application is browser-based, so it can run on any platform with a browser and an active connection to the Internet).

Appropriateness: Students might need initial instructions to understand how to use the site. However, help is provided, navigation is very clear, and the interface is relatively simple. The teachers can use the Newsela as a way to engage students in learning. They are also given the tools to assess the students on their comprehension and provide them with feedback.

Outcomes: Quizzes, writing prompts, and annotations.

Evaluation: Any time during the reading task, the students can take the multiple-choice reading comprehension questions and/or write in response to a prompt. Once the students submit the answers, they will be auto-corrected by the system. The writing tasks, though, need to be corrected by the teacher.

Notes: This site also has grammar, writing, vocabulary, and spelling sections. Students could use it independently once they understood the basic instructions. New exercises are added frequently.

PIZZAZ: People Interested in Zippy and ZAny Zcribbling (Opp-Beckman, 2016)

Goals: PIZZAZ! is dedicated to providing "simple creative writing and oral storytelling activities with printable (yes, printable!) handouts," which "scale well to beginner through

advanced level proficiency and can be used with all ages" (Opp-Beckman, 2018).

Presentation: There are three categories: Poetry, Fiction, and Bag of Tricks. Each section has many links that have complete lessons with student handouts. Some have related links with activities that can be completed online.

Appropriateness: Most of the site is not addressed to students, but some parts are. Navigation is very clear, and the language is simple and clear. Useful for many ages and language levels.

Outcomes: Follow-up activities which can be done in class and/or read to others.

Evaluation: None—depends on instructor.

Notes: Lessons are simple to read and have many scaffolds, such as examples and outlines, so that learners could teach them to each other.

Word Games (East of the Web, 2015, http://www.eastoftheweb.com/games/)

Goals: Word practice that is not specifically for ESL students but is useful for them as well as native speakers.

Presentation: There are ten word games: Multipopword, Multieight, Switchword , Eight Letters, Popword, Codeword, Definetime, Storyman, Wordsearch, and Cryptoquote. Most focus on predicting letters, finding words or letters among others, and knowledge of vocabulary.

Appropriateness: Some of the words are esoteric, which might frustrate students. Some of the games, like Popword, could be useful for a variety of levels and ages.

Outcomes: Scores.
Evaluation: Typically "wrong, try again" type with no feedback.
Notes: Absolutely addictive for some students. Students would play forever! Need external document for students to record their words or otherwise work with the vocabulary and rules.

Software/Application Examples

Read&Write (Texthelp, 2015, https://www.texthelp.com/en-us/products/read-write/)

Goals: Provides students with different tools to read and write. The software toolbar allows the user to access dictionaries (textual and pictorial) and wordlists, read the text on an active window (such as word or PDF documents) or as they type, type as they read, highlight texts, and add text or voice notes. The software supports spelling, accuracy, and fluency.
Presentation: Read&Write can be installed on Windows, Mac, Android, and iOS machines, with extensions for Google Chrome and Microsoft Edge.
Appropriateness: This software can make learning more accessible to students, especially English language learners and students with reading and writing difficulties. Tools such as e-dictionary and thesaurus, graphic webbing, homonym checker, spellchecker, prediction, and audio playback support planning and organization, transcription, editing, spelling accuracy, and word fluency.
Outcomes: Recorded text and voice notes and

annotations.

Evaluation: There is no specific feedback, but learners see the consequences (for example by seeing how their speech in rendered to text) of their actions so the results are meaningful.

Notes: This product is not freeware, so it needs to be purchased; however, it can be tried for 30 days for free. This program supports 4 levels: early elementary, intermediate elementary, middle school, and secondary levels.

Vocab Victor (Vocabulary Systems, Inc., 2018, https://vocabvictor.com)

► **Goals:** Vocabulary development.

Presentation: The application offers 3 different smartphone (Android and iOS) games, namely, *Word Strike*, *Word Find*, and *Word Drop*, to support different types of word knowledge. The students pass through the levels and rank up, with the app getting more challenging in the process. The application presents interesting images, effects, and musical pieces. Navigation is very smooth and language is clear.

Appropriateness: The application has been designed based on the concept that words are organized into networks of associations in the mind (Aitchison, 2012). Accordingly, the application helps the learners to form native-like neural networks of words. Developers have asserted that the app is appropriate for college-aged ESL/EFL students, with the intention to be used as a supplement to classroom instruction.

Outcomes: The progress leads to in-game ranking up and vocabulary development. There is

a "progress room" in the game where students can learn about their progress.

Evaluation: The application uses stealth assessment (Shute, 2011) to track learners' developmental knowledge of the words based on their in-game progress and, accordingly, present them with similar or different lower-/higher-ranked words.

Notes: The games are engaging. The application provides Marriam-Webstrer (2018) definitions for the words the students have missed or do not know.

► More Ideas for CALL Reading and Writing Activities

Mullen and Wedwick's (2008, p. 66) assertion that "the literate of the twenty-first century must be able to download, upload, rip, burn, chat, save, blog, Skype, IM, and share" is correct—literacy in this age is no longer only the ability to read and write, albeit it is built on it. Furthermore, as Meyers (1993) and Herrell and Jordan (2011) note, students should not only read and write every day, but they should also have opportunities to share their ideas and writing. One of the strengths of using computers in reading and writing is that electronic technologies can provide myriad opportunities such as forums, blogs, fanfiction sites, Wikis, social media pages and applications, and virtual words for learners to share their ideas. Another useful reading and writing activity that computer use can support is journal writing. Journal writing provides students with many clear benefits (Hiemstra, 2001; Guenette, 2007; Kreeft- Peyton, 1990). It allows students to practice writing, receive modeling, gain authentic input, and communicate with others. Journals can be written among learners, between the teacher and learner, between learners

and experts, or even between learners and parents. Learners can write their journals in a first language, additional language, or combination of the two (or more), using academic or informal writing. More broadly, e-mail journals (Goettsch, 2001) and social networking applications such as Facebook (Tess, 2013) can be used to connect with learners in other cities, states, and countries, and to help learners gain insights about different cultures, literatures, and language uses. As messaging via social media application (see chapter 3) and emails is generally accessible and simple today, learners can use them to journal even in contexts with less advanced technologies.

► Conclusion

This chapter has presented many ideas and resources for computer-enhanced support of reading and writing. Language learners do not need computers to learn grammar, read with comprehension, or write for an authentic audience. However, teachers can use computers to help them address individual learners' needs, and provide effective, authentic language tasks and texts.

► Teachers' Voices

Have you checked out PBS Media (https://ksps.pbslearningmedia.org/)? I love the link to Between the Lions because it has Word Play. English language learners (and beginning students) get to click on the word, see the spelling, hear what it sounds like, and see what it does. Very valuable for English language learners! Other links will also take you to subjects for more advanced students.

I have always thought that drill activities have no value to students and therefore don't like using them, but the author

brings up a good point that drill activities can be made into something beneficial by supplementing the drills with external documents like handouts and graphic organizers. Also, you can arrange different roles for your students so your students have the ability to interact when doing the drills and can negotiate meaning with their partner, which is one of the optimal conditions for language learning environments. Now I am aware that drills can be used with learners if supplemented.

My students are very interested in playing a game called Minecraft. I have learned through our IT department that we that another school in the town uses it in their classroom. I need to go there and see what uses they put it to in their classes. I wonder if I can use it in building my students' literacy skills.

I find all this technology important to learning; however, I do not find it more important than understanding how to read (with comprehension) and write (effectively). We are losing the art of penmanship and the ability to use words beautifully. As a high school teacher I would really like to get students who know proper punctuation, grammar, and spelling. For those of us who are old enough to remember, we used to have to rewrite what the teacher had written on the board. This was good for several reasons, one of which is it modeled proper use of the language. I know the technology is cool and that it makes life easier, but does easy always translate into better?
One professor shared with me how one of her students purposely chose not to do well on his assignment. I think this was a huge software package that mostly focused on discrete literacy skills and tests that were leveled. I don't

think it was that he really liked the response the computer gave him, but he liked not having to move forward, because this was familiar to him and he had worked the system. It took her a few weeks or even months to figure out that this student was purposely choosing the wrong answers to stay at the same comfortable level.

I really like the idea of using external documents with tutorial-type software. I think it will really expand the use of a lot of the software that is available to us as educators. After reading and thinking about the use of external documents, I can see that I have not been using the software I have available to me very effectively. In the past I have used my drill-type software as something the students can play around with in the morning before school starts, or during any free time they might have. After reading about this, I decided to rework a 20-minute math review block of time I have. I have divided the class into groups, and have one group use the computers with external documents—working at their level—another group works with a para-pro [paraprofessional], and another group works with me with little chalkboards. (We have kind of the mix of old teaching styles with new technology—computers and chalkboard slates!) The external documents keep the accountability up. The students will have a paper to turn in at the end of the week that will show what they have accomplished while working with the software. I wish I had started this at the beginning of the year.

Technology in and of itself may be fun, but in our classrooms, the use of technology needs to support goals and student learning. I can teach to curriculum goals in a variety of ways. When I reach to technology, it is because it

will enhance learning. Using a specific piece of software such as Inspiration provides a graphic organizer that helps my students meet a learning objective. For example, I want students to look at many aspects of character development when they are creating a character in a story. If I build a template in Inspiration, in which students define a character in terms of physical characteristics, how the character is viewed by others, how the character changes over time, etc., these are valuable content goals. If I ask students to map these qualities using Inspiration software, they do a more complete analysis of a character. They are drawn to the computer because it is fun to create a web, but they do a more thorough job of character development because they are using software and it's fun. The bottom line is the character development. The use of Inspiration software encourages this development.

When working in the school computer site, four students, who were usually sitting together, were usually ahead of the rest of students in the class. Following a traditional classroom rule, I paired them with other students in the class to equalize the balance. I think it works. I have noticed that they also help their partners with their technology questions.

Chapter3

Developing and Practicing Listening and Speaking Skills

►Focus

In this chapter you will

- reflect on the benefits of using computers for listening and speaking
- learn techniques and guidelines for supporting and developing student listening and speaking skills
- explore software and websites that emphasize student listening and speaking mastery

As you read the anecdote below, think about how using technology can help students develop listening and speaking skills.

Ms. Ono's Japanese high school English language learners are planning to take a virtual field trip from Tokyo to New York City, and they are concerned that they will not be able to speak with native English speakers in the virtual environment of *Second Life*. Although they have basic written literacy skills, their listening and speaking abilities are generally poor. Ms. Ono tells them that, although such exercises will not fit into the required curriculum, they may practice in the computer lab after class, and she recommends that they visit *Randall's ESL Cyber Listening Lab* (http://www.esl-lab.com/). There, the students find more than 100 listening quizzes ranging in difficulty from easy to very difficult on a wide variety of topics. The quizzes, which feature native English speakers from the United States, contain an audio portion and questions to focus the listening.

Students can play the audio over and over and go up to the next level or topic when they feel that they are ready—they have many choices. Some of the students print the study guide, which helps them to choose the quizzes that are focused on what they want to know. Some of the students work together, discussing the sound bites as they listen; others work industriously by themselves to complete as many quizzes as they can. The website provides the correct answers to the students immediately after they answer, and some students go back and listen again to confirm their choices or check where they went wrong. When they just do not understand, they can look at the quiz

script and see the words that they are having trouble with, then go back and listen to the audio to hear the pronunciation and use. After several weeks of practice, some of the students begin to feel more confident that they will be able to understand and interact with native speakers when they get to virtual New York. Finally, the class members create avatars in *Second Life* and virtually visit New York City. They visit with New Yorkers in *Second Life* and use the expressions they have learned to communicate with other virtual characters through text and audio chat.

►Overview of Listening and Speaking Skills in Language Learning

To speak and listen fluently and accurately in a second language, language learners need to be able to comprehend and produce—in a native-like fashion—stress, intonation, rhythm, pacing, gestures, and body language, and they need both linguistic and sociolinguistic competence (Florez, 1999; Wang, 2014), or, as Celce-Murcia (2008) notes, they need a composite of competences—sociocultural, discourse, linguistic, formulaic, interactional, and strategic. They should understand language functions such as sharing personal narratives, greeting and leave-taking, informing, questioning, clarifying, and interrupting. For practicing and developing skills, Peregoy and Boyle (2017) recommend activities such as singing, role-playing, dramatizing poetry, doing show and tell, tape recording children's books, and choral reading.

Many educators assume that although computer software and the Internet can support student reading and

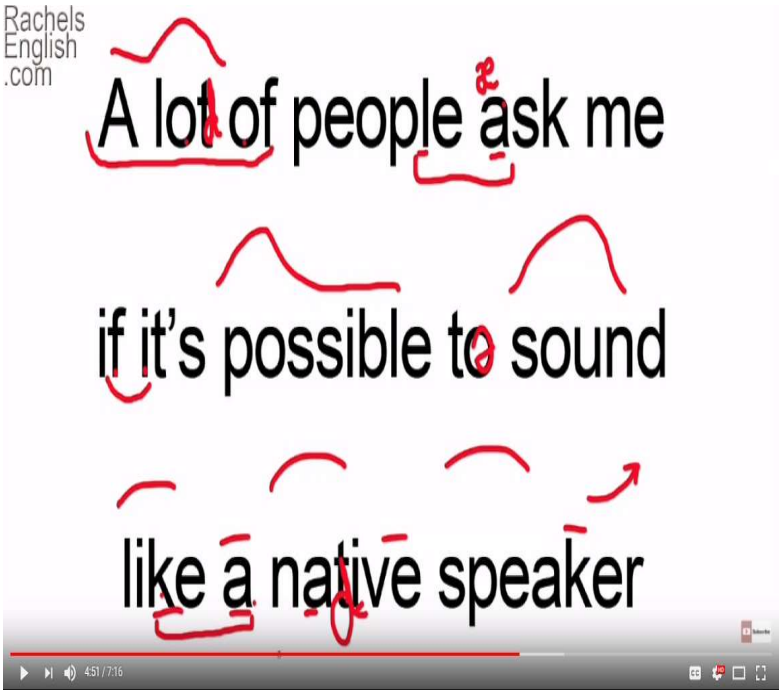
writing effectively, they cannot support student listening and speaking. Whether this is true, however, depends on how these technologies are used. Florez's (1999) note that "opportunities for speaking and listening require structure and planning if they are to support language development" (p. 1) still holds true, and carefully planned CALL activities can use computers to support listening and speaking. For example, computer technologies can assist students to interact with other English language learners and with native speakers in many different forums not only to practice but also to develop listening and speaking skills. Cary (2000) notes that computers can also "get reluctant speakers to speak English" (p. 36) by providing them with increased opportunities, less teacher fronting, and the authentic and challenging situations that Cary recommends. Moreover, we are living in a time when Internet-based communication technologies have made it easy for us to be connected in various ways and use this potential to teach speaking and listening. Kessler (2018) notes that today "we can easily create opportunities for learners to record their oral production for speaking and pronunciation improvement while presenting them with feedback from native speakers, peers, instructors, and others" (p. 206). Social networking, virtual worlds (VWs), and other participatory discourse tools are invaluable and familiar and can support learners.

Two basic CALL task structures (touched on in chapter 1) promote learner speaking and listening as part of social interaction. Learners can speak *around* the computer, or learners can speak *through* the computer. In addition, some software programs provide learners with

opportunities to speak with (although not to genuinely interact with) the computer. Each of these structures has different advantages. When designing technology-supported language learning tasks, teachers can use one or more of these structures as appropriate for learners. Examples of these three types of tasks are presented in the following sections.

▶ Listening and Speaking Around the Computer

Learners can work around the computer with learners at their own level to obtain and practice basic skills. They can work with the plethora of listening exercises provided by websites such as *The Internet TESL Journal* (see http://iteslj.org/links/ESL/Speaking/ and http://iteslj.org/links/ESL/Listening/), *English Club* (see https://www.englishclub.com/), or *Dave's ESL Café* (http://www.eslcafe.com/), and *Real English Conversations* (see https://realenglishconversations.com/). To listen to the audio, students may have to download a helper program such as *RealPlayer* (n.v.) or *QuickTime* (n.v.), but these listening pages provide directions for how to do so, and some pages provide their own embedded player plugins. More advanced students can listen to news stories and read the text at the same time at the *National Public Radio* site (http://www.npr.org/) or practice with idioms, pronunciation, spoken grammar and more at *TalkEnglish.com* (https://www.talkenglish.com/) or many *YouTube* videos channels (with caption support), such as *Rachel's English* (https://www.youtube.com/user/rachelsenglish). Figure 3.1 presents an example from *Rachel's English* channels page teaching a *Ben Franklin Exercise* to improve



students' listening comprehension and pronunciation.

These sites benefit students by providing content that enables them to interact with one another; in other words, the listening and speaking that students do around the computer when they talk about the listening and speaking exercises reinforces and provides practice for the concepts under study. To facilitate these activities, teachers may want to create additional handouts (external documents) that help students interact, understand, and apply what they learn. (For examples of how such external documents work, see Ryan's, 2000, *Recipes for Wired Teachers*, in which many of the lessons use external documents.) External documents can also effectively enhance ESL freeware (cost-free software)—programs that

can be downloaded from, for example, *Teachers Pay Teachers* (https://www.teacherspayteachers.com).

Many content-based software programs written for ESL learners and native speakers have built-in interaction structures that require students to interact around the computer to complete a task. One example is *Simon Says* (available from http://iteslj.org/games/9997.html), which presents a low-level fun game to play in class. Social studies, math, and science programs from companies such as Scholastic (http://teacher.scholastic.com/products/tomsnyder.htm) provide roles and materials with their software products that support oral interaction for learners at all levels using discussion, decision making, and cooperative learning structures. Likewise, there are many computer games that can be played collaboratively. For example, using *Minecraft* (see https://minecraft.net/) in multiplayer mode can create a collaborative task for students to engage in negotiation of action (Zheng & Newgarden, 2012) around the computer. In fact, there are a host of computer games that can support listening and speaking around the computer (see https://www.fluentu.com/blog/english/english-video-game/ for a list of games).

Working around the computer allows learners to test their language and content hypotheses with peers, to learn pragmatic skills before taking them outside of the classroom, and to have some control over how and when they participate. In these ways, such activities provide opportunities for language learning.

►Listening and Speaking Through the Computer

When learners are capable of interacting with more fluent speakers, they can use the computer as a conduit to native speakers and more advanced second language learners around the world. Today, advances in information technology have rendered intercultural communication easier than ever. High-speed Internet connections and different computer technologies can make computer-mediated communication (CMC) a reliable part of teaching and learning. The opportunities that social media websites and applications (such as *WeChat, Facebook*, *Google+*, *Twitter*, *Instagram*, and so on) provide can be used in classroom and non-classroom settings to enable students to interact with native and non-native English speakers via text, audio, and video chats synchronously and asynchronously. There are also a host of technologies which are designed for language learning. For instance, *Speaky* (http://www.speaky.com) is a multi-platform social networking application (web, iOS, and Android) that enables learners to practice more than 100 languages through intercultural communication via text and audio messages. The users create a profile (where they provide their first language, proficiency level in the language they aim to practice, birthday, and goals) and are paired with others who are native speakers of the language. Others interested in practicing the user's native language can also send them commination requests. Some other current popular language exchange websites and applications include *LingoGlobe* (http://www.lingoglobe.com/), *WeSpeke* (http://en.wespeke.com/), *Coffee Learning* (https://coeffee.com/), and *epals* (http://www.epals.com).

Of course, the same safety rules and etiquette as in real-life settings apply to these environments as well, and teachers and learners need to exercise caution when using these platforms. Figure 3.2 shows the interface of *Speaky*.

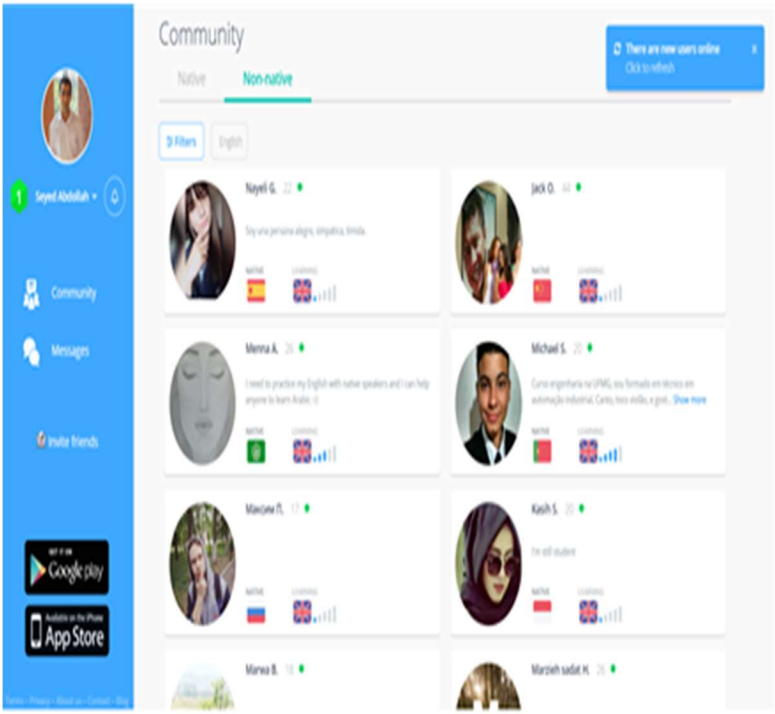


Figure 3.2. An example from Speaky community.

Virtual immersive environments (VIE), including the cave automatic virtual environment (CAVE), virtual reality (VR), and augmented (AR) reality technologies provide affordances for listening and speaking. What these technologies have in common is a tendency to create environments that support student immersion. Immersion is an old-age concept defined as "a psychological state characterized by perceiving oneself to be enveloped by,

included in, and interacting with an environment that provides a continuous stream of stimuli and experiences" (Witmer & Singer, 1998, p. 227). With the technologies we have today, we can develop immersive environments that can potentially immerse students in the learning process. VIE, then, is the general term to refer to such environments, where VR experiences are created. CAVE is a room-bound setting with technologies such as computers and peripherals like projectors, depth cameras, and other sensors where a VR experience is created. For instance, the CAVE at Washington State University, called the Virtual Immersive Teaching and Learning Lab (VITaL), comprises a computer with peripherals, three projectors, three screens, one *Microsoft Kinect* camera (a motion sensor, see http://microsoft.com for more information), a *Leap Motion Controller* (a motion sensor, see https://www.leapmotion.com for more information), and an *Xbox One* gaming console. In VITaL, students can participate in *Minecraft*, dissect virtual frogs (https://www.youtube.com/watch?v=_lrjOc_iuyQ), design 3D models and print them using a 3D printer (https://www.youtube.com/watch?v=JFWWHuOfnNY), and many other things. There are technologies that can transform the room into a gaming platform (see *Microsoft RoomAlive,* https://goo.gl/mB6jVt) or create an animated 3D replica of an interlocutor at a distance (see *Microsoft2Room*, https://goo.gl/wxXTSy) right in the room.

VR headsets such as the *Oculus Rift* (https://www.oculus.com/rift/), *HTC VIVE* (https://www.vive.com), or *Microsoft HoloLens* (https://www.microsoft.com/en-us/hololens) also offer

great affordances for immersion in head-mounted mobile technologies. AR programs and gear can, as the name suggests, add other important information to the learners' experiences. For example, an iPad with the application *4D Anatomy* (https://www.4danatomy.com/) can make a regular anatomic lesson handout alive with added multimedia information about the human body (see https://www.youtube.com/watch?v=ITEsxjnmvow). Educators can also make their own AR content using *Aurasma* (https://www.aurasma.com/). All these environments and technologies can provide affordances for speaking and listening through and around computers.

Virtual worlds (VWs), a form of VIEs, are high-fidelity 3D environments simulating real-world contexts and features (Kim, Lee, & Thomas, 2012). VWs provide engaging environments for synchronous and asynchronous listening and speaking practice. These worlds, such as *Second Life* (https://secondlife.com/); *Active Words* (https://www.activeworlds.com/); and *Twinity* (http://www.twinity.com/), are online communities of users interacting and manipulating objects in graphical three-dimensional (3D) environments (Bishop, 2009). Users can gather virtual characters (avatars) from around the world into different virtual social spaces such as shopping centers, schools, beaches, and restaurants, where they can engage in social interactions and activities with other members through different in-world communication tools such as text and audio chat. One popular form of VWs is massively multiplayer online games (MMOGs) such as *Quest Atlantis Remixed* (http://atlantisremixed.org/), and *World of Warcraft* (https://worldofwarcraft.com/). These worlds can

make engaging tasks for listening and speaking. During gameplay, students can collaborate towards completing a teacher-assigned task by communicating over the in-game chat server or other third-party audio chat applications like *Discord* (https://discordapp.com/) or *TeamSpeak* (https://www.teamspeak.com/). As these games are organized around "quests," they can be very engaging as the students actively collaborate, strategize, problem-solve, and communicate towards accomplishing communal goals.

Asynchronous means of communication can also be used in language classes, especially in cases with time differences, low Internet connectivity, and time needed for task preparation. Almost all synchronous applications allow for asynchronous messaging as well, but some applications like voice-based and video-based discussion boards as well as audio e-mail are asynchronous. An example of a multi-modal discussion board is *VoiceThread* (https://voicethread.com/). Through this application, educators and students can create multimedia discussion posts by integrating a variety of resources such as video and audio recordings, pictures, texts, and markups. Then, the other students can post their own multimedia response to the thread. Activities using both synchronous and asynchronous audio and video exchanges also include dialogue journals (see chapter 2 for more on written dialogue journals) in which two or more participants record messages and send them to each other in a running stream of conversation.

In addition, learners can practice speaking and listening through the computer by recording audio segments in word processing software such as Microsoft

Word or in presentation software such as Microsoft *PowerPoint*. Students can even trade suggestions for essay revision in Microsoft *Word* through audio commenting capabilities, or use Google *Docs* (http://docs.google.com) or a screen capturing application such as *Jing* (https://www.techsmith.com/jing-tool.html) to provide each other with multimodal feedback. Finally, they can use an array of social networking applications such as *WhatsApp* (https://www.whatsapp.com/), *Telegram* (https://telegram.org/), and *WeChat* (https://web.wechat.com/) to send each other recorded audio and/or video messages or join groups where they can practice their listening and speaking. Again, a major benefit of this task structure is that learners can interact socially and receive authentic oral input from peers and others. They also have opportunities to use spoken language with a wide variety of listeners in an atmosphere that allows them to record and re-record until they are satisfied with their results. Moreover, as the exposure to input rises, so can language noticing through feedback resulting from multiple output channels of interaction with peers and other interlocutors. Also, as these activities can be designed to be authentic, meaningful, and feedback-laden, they can be engaging as well. In these ways, working through the computer enables learners to develop their skills in an environment supportive of language learning and task engagement principles.

► **Listening and Speaking with the Computer**

Opportunities for learners to work interactively with the computer on listening and speaking have developed exponentially over the past decade, especially with

advances in Artificial Intelligence (AI). There are applications these days that can listen to one's speech and respond relatively correctly. For instance, asking Amazon's *Alexa* or *Google Home*, "What day is today?" is most likely replied to with a grammatically, semantically, and contextually correct response. However, these intelligent personal assistants (IPAs) are still in development and, although they function so fascinatingly in our lives, they are limited by how they are made and what contents are programmed in. Nevertheless, IPAs can be great tools to practice speaking and listening. In a case study on four Japanese EFL learners' perception of Amazon's *Alexa*, Dizon (2017) found that the IPA was only accurate 50% of the time, understanding 18 of 36 commands given by students. Also, the results showed that students' unintelligible pronunciation accounted for 28% of *Alexa*'s miscomprehension, which made them try to "modify their output in order to be understood by Alexa" (p. 820). Therefore, these emerging technologies offer potential for use in the language classroom.

Moreover, there are speech recognition tools in most popular commercial English learning software such as *Rosetta Stone* (https://www.rosettastone.com/), *Rocket Languages*, (https://www.rocketlanguages.com/), and *Mango Languages* (https://mangolanguages.com/) that allow learners to compare the comprehensibility of their utterances to that of native speakers. These programs can model native speaker pronunciation aurally that learners listen to, repeat, and receive feedback to from the computer. For example, *English Language Speech Assistant* (ELSA) (https://www.elsaspeak.com/) is a cross-

platform (iOS and Android) interactive smartphone application that can provide tailor-made training on pronunciation based on students' first language.

Figure 3.3 presents an example from ELSA's job interview exercises. Here, the learner's pronunciation has been compared to that of a typical native English speaker and color-coded (red, yellow, and green) based on their similarity, with green and red representing the two sides of the intelligibility and unintelligibility continuum, respectively.

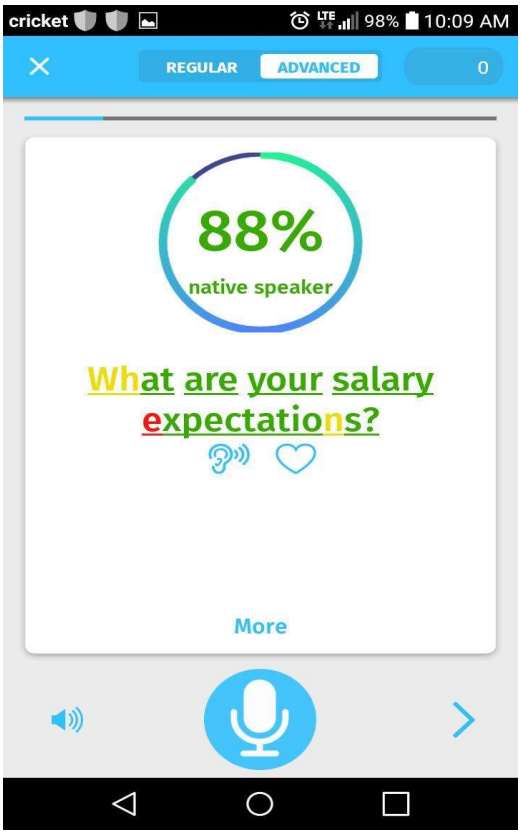


Figure 3.3 An example from ELSA's job interview

exercises.

Dictation software packages such as *Windows Speech Recognition* (built-in in all Windows machines), *Apple Dictation* (built-in all Mac and iOS machines), and Google *Docs Voice Typing* (http://docs.google.com) allow users, once they have trained the software, to speak into a microphone and watch the software type their speech onto a page. Watching the software interpret the learner's speech provides feedback in the mistakes that it reveals in pronunciation and grammar. The user can then instruct the computer orally how to manage the mistakes that it has found.

As electronic technologies become more advanced, students will be able to work *around*, *through*, and *with* the computer. For now, however, using the computer as a partner is still in development, but computer as a tool provides learners with numerous opportunities to improve their target language listening and speaking skills.

► Supporting Listening and Speaking

The following two instructional techniques, which are fundamental to language learning, support listening and speaking.

1. **Provide opportunities for students to notice.**
   As discussed in Chapter 1, noticing (Schmidt, 2001) is important in the language learning process. To be able to produce fluent and comprehensible speech and appropriately interact with others, students need to notice the forms and function include in language input that they receive and errors in their own

linguistic output. Lightbown and Spada (2000, 2008) suggest that tasks should be carefully devised to provide students with access to correct forms, both isolated and integrated (Valeo & Spada, 2016), that they can discover together.

2. **Include pragmatics in lessons.**
   Simply put, pragmatics is the study of language in use; that is, how meaning is formed through utterances between speakers in a specific context (SIL, 2018). Teachers can use any of the language modes to teach norms of social appropriateness in the target language culture if they make noticing these features a lesson objective (see Hanford, 2002; Hinkel, 2014, for more information on culture and pragmatics in language teaching and learning). For example, video segments in software can help learners understand body language, gestures, proximity, and other pragmatic functions while they listen. Although communication through the computer such as text and voice chatting can provide only limited pragmatic and sociocultural information, using the computer for these activities is similar pragmatically to using the telephone, another essential skill for many students.

When Ms. Ono in the opening scenario chose *Randall's ESL Cyber Listening Lab* for practice, she picked it because it presents scripts for students to use as scaffolds, allows students to choose the level at which to work, and provides opportunities to replay the audio segments, which helped students notice the grammar in native speech. Ms. Ono also wanted the students to have additional practice

with the native pace in the audio. These segments were authentic and meaningful for students because they were planning a virtual trip to the United States; learners might even talk about these very topics on their trip. Although Ms. Ono did not expect that all students would gain in the same ways from using this site, exposing them to it helped prepare them for what they might encounter on their field trip.

► Tips for Designing Opportunities for Skill Development

In addition to promoting noticing and teaching pragmatics, teachers can help students learn to listen and speak in English by giving them time to talk to each other every day (Peregoy & Boyle, 2017). Lightbown and Spada (2000) note that, although students at the same proficiency level usually cannot correct each other's language mistakes, they do not reproduce each other's mistakes. Rather, peer interaction provides practice in listening, speaking, and negotiating that learners otherwise might not get. Learners can develop speaking, listening, and oral grammar skills through direct instruction or by participating in content or whole tasks, but most important is that learners have opportunities to practice in a variety of authentic venues where they engage in social interaction and receive feedback from their peers (Baralt, Gurzynski-Weiss, & Kim, 2016). Computers can indeed help provide these opportunities.

► Technologies for Listening and Speaking

Florez (1999) still makes a good framework for listening

and speaking lessons by noting that such lessons "can follow the usual pattern of preparation, presentation, practice, evaluation, and extension" (p. 2). These steps generally include telling students what the goals of the activity are, making sure that they have the skills necessary to perform it, working with the target skill or form, noting learner progress, and following up. Teachers can use this framework to focus the lesson on language learning while integrating technology where it supports language learning most effectively and efficiently. Also, the *TTS-LL*, goal 3 specifically, call for learners' ability in appropriately using and evaluating technology-based tools for communication and collaboration (Healey, 2018). Likewise, the standards for teachers, goals 2 and 4, specifically call for teachers' integration of technologies with pedagogical knowledge to enhance the learning and teaching process and support efficient communication and collaboration between teachers, peers, and students (Healey, 2018). Following are three sample listening and speaking lessons that use Florez's framework and integrate technologies at various points during the lesson to help students learn and practice speaking and listening.

► ***Example 1***

Lesson: Introducing CALL to Learners
Focus: Interviewing skills, discussion skills, oral summary, question formation, listening for main ideas.
Preparation: Show the learners the computers that they will be using. Ask them to brainstorm what computers are used for.

Ask what might be learned with/through computers in a language classroom (i.e., what topics, vocabulary, skills). Type these lists in a word processing or presentation program as the learners participate.

Presentation: Create a survey with learners to find out about previous computer use and skills among members of the class or program. Focus on vocabulary and grammar points as necessary. Work with the class on interviewing skills, model the procedure, and have learners practice with each other.

Practice: Have the learners conduct the survey orally with the target population and take notes on the answers. Learners record all the answers they receive in a simple database.

Evaluation: Based on the answers they received, have learners add to their original list of what computers are used for and what might be learned with/through the technology. Ask students to keep this list and to add to it during the course.

Extension: Have learners, individually or in small groups, survey other language classes. Ask them to report their findings back to the class, and then have the class discuss these findings before entering them into the database.

While working on this lesson, learners are encountering

and practicing both pragmatic and linguistic features of the target language. They are meeting the CALL principles such as authentic social interaction, language production, and using technology as a learning tool (see chapter 1).

► ***Example 2***

Lesson: Cultural Debates Online

Focus: Debate/argument skills, discussion skills, presentation skills, question formation, formulating an opinion, asking for clarification, critical thinking skills, pronunciation, using phrases of agreement and disagreement.

Preparation: (a) With learners, brainstorm what culture means and why it is important to its members. Ask learners to reflect on recent or major changes to what they consider their culture. (b) Introduce learners to their e-pals (online pen pals) and have them record oral introductions of their own to send to their *e-pals* (e.g., through http://www.epals.com or using a social networking application like Facebook).

Presentation: Teachers should create a debate at *Create Debate* (http://www.createdebate.com/) and provide enough information on a cultural topic. Learners should read the background information and discuss it (e.g., compare it to their own culture, develop questions about the culture) online. They should learn how to pronounce vocabulary and to use forms as needed. Learners then express their opinion (Support, Dispute, Clarify) through the website. They may use other sources such as electronic and paper encyclopedias, online and off-line books and articles, films, and websites to gather additional

information to support their argument.

Practice: Learners formulate their arguments in groups and then, at the appointed time, use a synchronous audio/video chat tool (e.g., *WhatsApp* at http://whatsapp.com, *Paltalk* at http://www.paltalk.com/, or *Viber* at https://www.viber.com/) to discuss their arguments with their e-pals. Learners should take notes during the conversations.

Evaluation: Learners discuss together what they have learned and if any parts of their argument have changed. They then present their argument to the class for additional feedback.

Extension: Learners prepare an entry for their oral journals about what they have learned from this activity and how it has impacted their ideas about their own culture. Or, they may start a new topic on the website and have others participate in the debate. Also, there are many open debate threads that the students can participate in and later discuss their opinions with their classmates.

While involved in content-based learning, these learners are also using oral language for a variety of purposes. The activity emphasizes the importance of linguistic skills, especially pronunciation, because learners interact orally with their classmates and with learners across the Internet. Pragmatics also plays a role as learners work on discussion skills such as turn-taking and interrupting.

► ***Example 3***

Lesson: Jazz Chants Online

Focus: Rhythm in oral English, adverbs of frequency, computer parts vocabulary, stress, pronunciation.

Preparation: Write a sentence on the board and review the terms *stress*, *intonation*, and *rhythm*. Discuss with students how these aspects in the target language may differ from these same aspects in their first language. Students can do some of the pronunciation exercises in the *Skills* section of *One Stop English* site (see Macmillan Education Publishers, 2018, http://www.onestopenglish.com/skills/pronunciation/) alone or in groups; then the class can practice with several sentences, marking the word stress and intonation patterns.
Presentation: Find "My computer's crashed" chant at the *One Stop English* site (Macmillan Education Publishers, 2018). Print or copy the script for each student. Students listen to the recording on the website as they mark the stress and intonation patterns and take notes on any pronunciation aspects that they need. Students can listen as many times as they need to. They compare their marks with one or more classmate's and then the whole class corrects the marks on their scripts together.
Practice: Students practice the chant orally in groups or individually, and student listeners mark a script for student speakers to show the stress and intonation used. Speakers can then compare their performance to the corrected script.
Evaluation: Students can listen to, mark, and practice another chant from the website. Then, they can share their work with the class for feedback.
Extension: Learners pick a topic and find a partner. With their partner, learners then develop a jazz chant for the topic. They can record their chant for future class exercises, or they can present it to the class for evaluation and discussion.

Although this activity is focused on discrete skills, it provides learners with ample scaffolding and modeling, authentic audiences for their interaction, and many choices in their extension activity. In other words, this activity can support the principles of language learning and task engagement outlined in Chapter 1 by giving students authentic and meaningful input, having them work collaboratively, supporting them with feedback from peers, and helping them to notice variations in pronunciation. As is evident from the examples in this chapter, computers can promote listening and speaking in many ways that meet the tenets of language learning and task engagement.

► Conclusion

Many of the activities throughout this book support listening and speaking and meet principles of language learning and task engagement as outlined in Chapter 1. These exercises and activities are only a small portion of those available for teachers and learners. For example, *One Stop English* (see http://www.onestopenglish.com/) has many great ideas for speaking activities in language classrooms. Although not presented as CALL activities, most of them would be effective and enjoyable to do with online partners, especially using audio and video messaging and social networking applications. VW settings are also great venues for practicing listening and speaking skills. At the *Sounds of English* website (https://www.soundsofenglish.org/) and many *YouTube* channels (such as https://www.youtube.com/user/rachelsenglish), learners can work on their pronunciation and fluency skills with video

support. For content-based listening, the movies at *BrainPOP* (http://www.brainpop.com/) are fabulous multimedia resources. The participatory discourses, social media applications, and VWs, especially MMOGs, provide great opportunities for engaging tasks that support authenticity, sociocultural interactions, feedback and scaffolding, and a balance of challenge and skill. Depending on your learners' and your goals, contexts, and needs, computer technologies are available to enhance skills and practice lessons of all kinds.

► Teachers' Voices

In years past, when I taught Language Arts, I would use music from School House Rock to enhance our lesson plans. For example, when we finished subject and predicates, we would learn and sing "Mr. Morton" ("Mr. Morton is the subject of my sentence. Whatever the predicate says he does…."). They would learn some songs and perform in front of the class. I thought it was very effective because of the catchy way they learned the rules. Sometimes, I would have students come back as eighth graders to my class and resing those songs. It may sound corny, but it works!

Are you willing to take the risk of putting students on voice thread? I have enough trouble getting the parents of my students to agree to let them use the Internet sources I have gathered—I know they would never allow me to arrange "chats" even for practice.

When I first received my computers, I tried having large groups at a time go to the computer to teach specific skills. I found that it was not effective nor was it efficient, and that I was slowly going crazy. There were so many questions and problems; I became frustrated, as did my students. Then I changed the format of my computer time. I first showed the whole class what they would be learning on my projector. I then got my class started on independent work. Then I took a small group of seven back to the computers, taught them the skill we were currently working on and that they had just seen demonstrated, and got through the task. I then allowed each of those students to teach the skill to another student, who taught it to another student, and so on. It was a wonderful way for me to check the students' level of understanding on the computers, it gave the students an opportunity to show what they had learned in an authentic way, and it allowed me the opportunity to individually meet with students. It is a method that may not work for everybody; in my class it's great. I think it just showed me that in using technology within the classroom, each teacher needs to individualize the management aspect of it to suit their specific needs and comfort levels.

I used e-pals.com to let my class meet other students from a different background which they learned about through our world geography class. Aside from some occasional Internet-related disruptions, I think it was a really good intercultural experience for me and my students. We even mailed a collection of our cultural valuables to them, and so did they. My students were so excited.

Chapter4
Communication and Collaboration

►Focus

In this chapter you will

- review the benefits of communication and collaboration in language classrooms
- learn techniques to support communication and collaboration
- discover opportunities afforded by a variety of physical contexts
- learn how technology can be used as a communication medium to enhance classroom communication
- explore activities and tools that promote collaboration and communication

As you read about the CALL project below, reflect on how students communicate and work together during the activity.

ESL students in Mr. Ehman's class in New York are involved in their Mystery Character assignment. They are conducting Internet and library research on a character that they have chosen from current political events. In each group, one student is assigned to research the character's background, one to discover information about the character's current situation, and one to uncover interesting little-known facts about the character. Group members will pool their information in order to pose as this famous mystery person. They will create a *Google Doc* and share it with their native-English-speaking electronic pals (e-pals) in Ohio with clues in English about their character's identity.

Their e-pals will use clues from the document, reference materials from their library, texts, classmates, and other resources to form questions to ask the mystery character. While trying to guess who the mystery character is, students are required to complete an individual written analysis and then pool their answers with the group to decide what questions to ask. They also decide together what names to guess. After an exchange of several messages in the *Google Doc*, the native speakers will eventually guess who the mystery person is. Once they guess correctly the roles will be reversed, with the native-English-speaking students creating a new document with clues and sharing it with the ESL students, who will try to guess the name of the new mystery character.

Overview of Communication and Collaboration in CALL

As evidenced by the theoretical framework outlined in chapter 1, social interaction is a crucial component of language learning environments, including those enhanced by computer-mediated communication (CMC) technologies (Chapelle, 1998; Gass, & Mackey, 2015; Stockwell, 2010), both synchronous (at the same time, such as chat) and asynchronous (learners posting at different times, such as forum/discussion board interactions). Sadler (2007) notes that:

> CMC gives language learners access to more knowledgeable individuals, either native speakers of the target language or more advanced nonnative speakers, than they might be able to encounter in a face-to-face environment, thus increasing their potential ability to learn. Indeed, in some environments, CMC provides the only possibility for access to NSs. (p. 12)

Whereas the term *communication* implies simply conveying knowledge either one way or through an exchange, the term *collaboration* is less easy to define precisely. For the purposes of this book, collaboration will be taken to mean the process during which learners interact socially to create shared understandings (Nyikos & Hashimoto, 1997) by engaging in problem solving and knowledge building (Sun & Chang, 2012; Swain, 2000). Social interaction, one of the principles of classroom language learning outlined in chapter 1, includes two or more participants communicating by negotiating meaning, clarifying for each other, and working in other ways to understand each other. Many educators believe that

technology's capability to support communication and collaboration has changed the classroom more than any of its other capabilities (Du & Wagner, 2007; Godwin-Jones, 2003; Kessler, 2009, 2018; Reinders & Hubbard, 2013). In fact, it is how educators make use of that capability that can change classroom goals, dynamics, turn-taking, interactions, audiences, atmosphere, and feedback and create a host of other learning opportunities.

Likewise, the focus on social interaction as the basis for collaboration fits well with the *TTS-LL* (Healey et al., 2011); Goal 3, Standard 3 requires that "language learners appropriately use and evaluate available technology-based tools for communication and collaboration" (p. 1) Moreover, social interaction meshes well with the tenets of the International Society for Technology in Education (ISTE, 2018) standards 5 and 6; the ISTE standards for students require mastery of digital communication tools, including being able to "communicate clearly and express themselves creatively for a variety of purposes using the platforms, tools, styles, formats and digital media appropriate to their goals" and "use digital tools to broaden their perspectives and enrich their learning by collaborating with others and working effectively in teams locally and globally" (see https://www.iste.org/standards/for-students). By interacting and negotiating meaning with others in the target language, according to Warschauer (1998), learners can

- take advantage of modeling
- gain new, comprehensible language input
- use language creatively
- work together to understand new experiences and derive meaning from them
- solve language and content problems

- gain control of a situation or person
- learn to use language appropriately
- transfer information
- focus on language structure and use

Clearly, these benefits derive from interacting with other people who can respond creatively and originally in a focused way. Research shows that the interaction between learners and their interlocutors is beneficial to second language development (Mackey, Ab-buhl, & Gass, 2012; Van der Zwaard, & Bannink, 2016). The variety of computer technologies that we use today both in and outside the classroom can potentially provide us with unprecedented opportunities for communication and collaboration. However, the effectiveness of the collaboration tool depends on many variables.

► Supporting Communication and Collaboration

Social interaction may take place in many configurations—for example, student to student, student to group, and group to group. Learners can also interact socially with a variety of people: classmates, teachers, students in other classes, community members, external experts, and peers around the world. Sometimes they may be part of a massively multiplayer online games (MMOG) (either educational or "serious"), where they randomly join and collaborate towards a shared goal. However, because learners are part of groups or asked to participate does not mean that they will interact, or that they will interact in the target language, or that the interaction will facilitate language learning. The teacher must plan carefully to ensure that the interaction is effective. Here are two techniques for helping teachers to develop tasks that

increase the possibility of quality social interaction:

1. **Provide opportunities for learners to be active.**

   We have all been in study groups in which some students do the work and others do not participate. Those who do not participate may acquire some of the task's language or content, but they may also be missing out on the interaction they need to succeed. To help students become actively involved in the interaction, the teacher can build specific roles or assignments for individuals into tasks so that each student's contribution is necessary to achieve the group or team goal. These activity structures create the need for students to interact in the target language; the more learners need to interact, the more effective the interaction should be. These principles are the basis of techniques such as *cooperative learning*, *jigsaw*, and *information gap* (Burns, & Richards, 2009; Kagan, 1994; Richards & Lockhart, 1994; Peregoy & Boyle, 2017).

2. **Provide reasons for learners to listen and respond.**

   Many times at the end of a group task, learners are required to present their products to the whole class. In reality, they are addressing their presentations to the teacher for evaluation. What reason do the other students have to attend to what is being presented? By providing reasons to listen, such as adding evaluation rubrics that the audience completes, providing a handout to take notes for a quiz, or requiring a group synthesis of the information presented, the teacher encourages all

learners to listen and provides a basis from which to respond.

These techniques are related, in part, to the balance of autonomy/structure principle of task engagement (see chapter 1 for a discussion), in that the more choices (autonomy) the students have, the more they need to interact, consult, or negotiate with their team members and class.

In this chapter's opening scenario, Mr. Ehman has planned his task carefully to support student collaboration. First, the task requires his language students to interact with native speakers and with members of their teams in the target language. Second, students in Mr. Ehman's class have specific task roles. They must combine and synthesize the information they gather in their roles as researchers to develop a group document from their mystery character. This *information gap* activity, in which learners have information that their teammates do not, gives everyone in the group a reason to listen to the others' findings. In addition, by requiring students to analyze their incoming messages independently but using a handout to support group work, Mr. Ehman is also preparing his students to interact effectively. In the mystery character activity, the technology helps to create an environment unique in supporting interaction. In other activities, the use of computers may play a more peripheral role.

Before discussing activities that support social interaction and collaboration in the CALL classroom, a brief overview of the specific physical classroom contexts in which CALL occurs can help to explain how the technology may help. Computers can be arranged in many

different ways, ranging from complete labs to one-computer classrooms. The arrangement of the technology is one factor that impacts the potential for student interaction and collaboration, and teachers should consider the physical layout when designing CALL activities.

► Interaction in the Computer Lab

In a traditional CALL lab layout, students are sequestered in their own carrels or are sitting behind the computers, which obstruct clear lines of sight to the rest of the room. Although labs seem to be falling out of fashion in some contexts, they are useful not only for individual language learning activities such as using self-access software, conducting research, writing papers, sending e-mail, and completing practice exercises, but also for working on individual tasks as part of collaborations with online partners. However, the limited opportunities for mobility and difficulties in sharing hardware in a lab setting can make collaborating face-to-face difficult for multiple learners; this setting is better used, then, for individual tasks or online collaboration.

► Interaction in the Multiple-Computer Classroom

Computer classrooms, such as the one shown in Figure 4.1, allow for more group configurations and activities than traditional labs do. In this type of classroom, where computer monitors are recessed into desks and the desks are arranged in pods, students have free lines of sight to each other and an unobstructed view of the teacher. Unlike the lab, students have room to work without the computer and use it only when and if they need it. In this setting, the technology serves as a tool for all kinds of exercises, from

building Web pages to creating portfolios to working with stand-alone software packages. Instructors in these settings can develop CALL tasks during which learners work with partners online and face-to-face. It is important to try out the furniture before buying it—not all desks are made the same, and buying the wrong furniture can be a pricey mistake.

Figure 4.1. A computer classroom at Washington State University.

Recently, there has been a movement toward using active learning furniture and technologies in classrooms (Fisher, 2010). These rooms (see Figure 4.2), which are built on the premise that students should be actively involved in the learning process rather than passively listening to lectures, rely on wireless Internet connections, movable furniture, and portable communications devices such as tablets and laptops or allowing students to bring their devices to provide them with an array of hands-on individual and group learning experiences. Research (e.g., Van Horne, Murniati, Gaffney, & Jesse, 2012) shows that

such environments can support engagement principles by giving learners more autonomy and more chances to collaborate and problem-solve.

Figure 4.2: An active learning classroom at Washington State University.

►Interaction in the One-Computer Classroom

U.S. public schools commonly provide each teacher with one computer, sometimes in addition to a shared lab facility in the school with individual computers provided to students. Although one computer would seem to be insufficient for many CALL activities, the one-computer classroom has some benefits:

- The teacher can see what all learners are doing on the computer.
- The teacher has more control and more opportunities to directly facilitate interaction.
- The technology is available at any time.
- Students can see each other and work cooperatively

without barriers.
- It is easier for the teacher to give feedback.
- Having only one computer shifts the focus from the technology to learning and interacting.
- It is easy to use a variety of group configurations.

Learners in one-computer settings typically do not collaborate with partners at a distance, but this is a rich context for face-to-face interaction.

These three contexts—lab, multiple-computer classroom, and one-computer classroom—and other variations on technology-enhanced settings all support CALL activities. However, when designing CALL tasks, teachers must consider the physical setting's impact on not only the efficiency but also the effectiveness with which they can meet the CALL principles. For example, for an activity that requires triads of learners to interact to be effective in a computer lab, it might also have to be adapted. Likewise, an activity presented as a teacher-fronted lesson might best occur in the one-computer classroom.

▶ Tips for Designing a Computer-Enhanced Collaborative Project

In addition to making sure that students have opportunities to be active, reasons to listen and respond to each other, and an appropriate physical environment in which to work, teachers must consider other factors when designing effective computer-enhanced collaborative projects.

First, teachers should consider what they know about their students and, as much as possible, tailor the conditions to students' needs and abilities. For example, if two

students work better autonomously but others need more scaffolding and structure, their teacher should consider these needs when designing projects and choosing tools.

Second, developing effective groups will encourage effective interaction in the language classroom. Creating effective groups in technology-enhanced language learning classrooms requires the teacher to pay attention to the same factors as in any language learning situation, such as the students' first languages and cultures, educational backgrounds, and levels of target language proficiency. For group tasks that require students to use computers, the teacher may also need to consider students' levels of technical expertise and keyboarding proficiency.

Third, it is important to make the technology fit the project and not vice versa. Although teachers may be tempted to design a project around software or a website that they really like, the project will more likely meet curriculum and other goals if these goals, and not the computer tool, are the basis for the project.

Fourth, teachers can consider what will encourage students to interact in the target language. If two or more students in the same group speak the same first language, make sure that they document their collaboration in English in some way. Finally, make sure that the outside experts, electronic mailing lists, or distant students with whom students will interact have agreed to participate in the project and know what is expected of them. Following these tips will make the project more efficient and effective for all participants. Examples of how these tips work in practice are presented in the next section.

► Activities That Encourage Communication and Collaboration

There are many ways that social interaction can occur through and around the technology. To show how the techniques for supporting communication and collaboration can be implemented, this section describes CALL activities that provide opportunities for students to collaborate and communicate on some level. After each activity is a description of the computer tool, the students' roles, the choices they can make and need to discuss, and what encourages them to listen and respond to their peers or other information sources. The examples address learners in an assortment of grade and language levels from a variety of contexts and settings. The tasks are divided into stand-alone examples that use software on individual computers and online examples that use features of the Internet.

► Activities Using Stand-Alone Software

The examples in this section focus on stand-alone, commercially developed software packages. Teachers can use the techniques and principles described previously to develop activities with many different types of software. One of the benefits of using stand-alone software packages is that they do not change, whereas Internet resources must be checked regularly for changes.

► *Example 1*

Putting Vocabulary into Context

Diana and Evaristo are sitting together in the computer lab, but during this activity Diana is turned away from the computer screen. Evaristo is working on the "Your

Environment" section of the lab's vocabulary software. As each word comes onto his screen, he dictates it aloud to Diana, who copies it onto her paper. They discuss which answer choice presents the meaning of the word and then Evaristo enters the answer into the software. If the answer is correct, Diana writes the definition on the paper and they move on to the next word; if not, they discuss alternatives. When the exercise is finished correctly, Diana and Evaristo will study together for a vocabulary quiz.

Tool: Vocabulary practice software

Interaction: Student pairs

Roles: One student is the computer operator and the other the writer; during the next unit, they may switch roles.

Choices: Students decide on their partners and roles.

Reason to listen and respond: Students must cooperate to get all the words and definitions down on paper and to study for the quiz.

► ***Example 2***

Learning about Ancient History

Minecraft Education Edition (Version 1.4) provides each student team with a map based on ancient history called the *Wonderful World of Humanities* (Walker, 2014). Each part of the map shows a simulation of a particular area, such as ancient India, ancient Rome, and medieval times. The teacher starts the *Minecraft* server and provides the class with instructions on how they can join the server. Once everyone joins in, the teacher assigns each group a task--visiting a specific world with a series of questions to answer. For example, a team has been tasked to visit

ancient Egypt and locate the pyramids. The teams also needs to explore the rest of the area, looking for traditional Egyptian cultural items, including facts, buildings, and architecture. During the task, each member navigates the world from a Chromebook and can communicate with other members through headsets and a *Discord* channel with audio and textual chat support. When the student teams have their questions answered, they return to the starting point, take off the headsets, and share their findings with the rest of the class who record them for a future project. Afterwards, they are given new questions for the next exploration.

Tool: Minecraft Education Edition (Version 1.4)

Interaction: Student and team members

Roles: Explorer, demographer, visitor, tourist, and geographer

Choices: Learners decide the manner in which their group will function (e.g., how they will look for a specific piece of information on the map to answer the questions). They also choose to type or speak their answers via *Discord*.

Reason to listen and respond: Students will need the information for a future project, so they need to communicate and collaborate with their team members. This is an information gap activity.

► ***Example 3***

Neighborhood Trip

The class is preparing for a field trip around their community. While one group is developing a set of questions to answer and a second group is locating community members to talk to, a third group uses simple

map-making software on the one computer in their classroom to make a community map. Each student in the map group has been assigned a particular component of the map to research and to add to the map. When the map is finished, the group presents it to the class, explaining the key that they developed together and how to use the map most effectively. The other groups share their questions and resources. After the field trip, the class collaborates to add interesting information and features to the map.

Tool: Mapme (Education plan, https://mapme.com/)

Interaction: Student and small group members, student and class

Roles: Researchers for houses, streets, buildings, signs, or landmarks (each does the part of the key related to his or her role)

Choices: Students choose the roles they play and how to present their information.

Reason to listen and respond: Students must use the map to find their way to various locations in the community.

► Activities Using Online Resources

The Mystery Character activity in the introduction to this chapter is an example of a computer-enhanced task that supports many kinds of communication and collaboration between members of the group and between on-site and off-site groups. Other online activities that support interaction are developing advertisements, participating in a literature circle, completing or developing WebQuests and MMOGs, designing a website, writing and maintaining a

Wiki, blog, or social media pages. These are only examples of what can be done collaboratively today. Generally, all Web 2.0+ (the second generation of web that promotes social and participatory discourses) technologies provide a variety of tools to communicate and collaborate. Additional examples follow.

► *Example 4*

Shopping on the Web

Student teams are asked to develop a new advertising campaign for a common product. Before doing so, they need to compare their product's existing prices, features, and advertising. Each student checks a different website, such as http://www.amazon.com/, http://www.ebay.com/, or another shopping site that the teacher has supplied and then fills out a column in the product comparison handout. The other team members add the information that they have discovered about the product. They will use this information as they take on the roles of artist, text editor, and presentation specialist in preparing their advertising campaign. Once their advertising is in place, they will present it to the class for evaluation. Students will also take orders for the product from members of the school community as a way to evaluate their work.

Tool: Internet shopping sites and advertising; presentation/graphics package such as Microsoft *PowerPoint*, Google *Slides*, *Pages*; word processor such Microsoft *Word*, Google *Docs*, and Apple *Pages*

Interaction: Student and small group members, small group and class, small group and school

Roles: In the first part, students are all researchers using different websites for the product. In the second part, they each take a role in developing the advertising.

Choices: They choose a product that they are interested in, choose websites to visit from the teacher's list, and develop their own advertising strategy and presentation format.

Reason to listen and respond: The audience must evaluate whether the advertising is effective and tell why.

► ***Example 5***

Reading Circles

Students are required to post a weekly reading reflection to their online class on the free learning management system *Canvas* (https://www.canvas.com/). They are working with students at two other schools who are reading the same articles as they are each week. To keep the discussion going, the teacher has assigned each student to reply also to two other students' reflections each week during lab time. Students can ask questions, clarify points about the readings, or persuade the other students to their point of view. At the end of the week, each student writes a summary in his or her reading journal of what he or she learned from the week's online discussion and then takes a quiz on the reading content.

Tool: Asynchronous electronic discussion forum

Interaction: Student and off-site partners, student and whole group, student and teacher

Roles: Each student posts an individual opinion.

Choices: Students choose what to say and to whom they say it.

Reason to listen and respond: Students must understand

the issues to participate in the discussion, and they have to pass the quiz.

► ***Example 6***

WebQuests

In Ms. Hall's class, high school ESL students are working on the "You are what you eat?" WebQuest that she developed. Their task is to create a cookbook of healthy regional recipes from the United States. Each team is assigned to one region of the United States and is required to

- make a list of foods specific to the region and investigate their history
- design a sample menu of ethnic foods for their region from that list, including entree, starch, vegetable, bread, dessert, and beverage. Including salad gets extra points.
- obtain sample recipes for these foods by searching the Internet or by conferencing over the Internet with a chef
- analyze each recipe on the menu for nutrients and construct a table for each recipe with the nutrient analysis
- total the nutrients for each complete menu and determine whether or not the menu is healthy using the American Heart Association's Dietary Guidelines for Healthy American Adults. If the menu is not healthy, use the guidelines for lowering fat and cholesterol to revise the recipes.
- prepare all healthy recipes for the class to sample, and submit them in recipe format to be placed in the cookbook (Emanuel, 2007)

The students divide up the research tasks among themselves to use their time efficiently. They use the roles that Ms. Hall recommends: (a) historian to research how

the history and development or settlement of each region influenced the region's foods; (b) journalist to record the information found during the learning process and to lay out the menu and recipes for placement in the cookbook; and (c) food researcher or nutritionist to interpret and analyze the foods, recipes, and other nutritional information discovered during the quest. The students compile all of their information to develop their final menu and prepare their meal.

Tool: WebQuest, Internet sites, word processor

Interaction: Student and small group members, small group to class, student or small group to external experts (chefs, for example)

Roles: Each student contributes part of the information needed to complete the project.

Choices: Students choose their roles, where and how they find their information, and how to present it.

Reason to listen and respond: The audience must listen to know what they are eating and why and to provide feedback.

These examples demonstrate that many different activities can support communication and collaboration in language classrooms. There are also many tools to facilitate such interaction.

► Tools for Communication and Collaboration

In addition to the tools just mentioned, those described in this section have been used in a variety of ways in CALL classrooms.

Chat

A chat room is a website that provides a forum for users to communicate in real time (synchronously). It is used for interactive messaging. Special software is not usually needed. Chatting is especially useful for interviews, guest lectures, and discussions in which instructors want everyone to have a chance to participate. Sometimes the conversation scrolls very quickly out of sight, however, and messages are not always in order. Examples include *Facebook Messenger* (https://www.messenger.com/), *Google Hangouts* (https://hangouts.google.com/), and *Skype* (http://skype.com). There are also 3D chat rooms that can be found in VWs (see chapter 3) such as *Second Life* (https://secondlife.com/) and *Twinity* (http://www.twinity.com/).

Discussion Forums

Forums provide asynchronous written conversation. Benefits include allowing students more time to think before they post and posting in themed threads that may be easier to read and follow than chats. Examples include electronic discussion forums often found in courseware packages such as *Blackboard* (available from http://www.blackboard.com/) and *Moodle* (https://moodle.com/). Some are also free, such as *Canvas* (https://www.canvaslms.com/), *Yahoo* (http://groups.yahoo.com/) and *Google Groups* (https://groups.google.com/).

Electronic Lists

Electronic lists, sometimes called *listservs* after a piece of popular proprietary software used to set up and run the list, are e-mail posting services created to facilitate the

exchange of information. When an e-mail message is sent to a mailing list, it is automatically broadcast to everyone who is subscribed to the list. An example is *FreeLists* (https://www.freelists.org/).

Google Drive

Google provides many cloud-based (that is, not physically stored on a user's computer) applications, such as *Docs* (http://docs.google.com), *Sheets* (http://sheets.google.com), and *Slides* (http://sheets.google.com), which can be used in collaborative projects. For instance, using *Docs*, multiple users from around the world can collaborate both synchronously and asynchronously towards developing a document. Also, the application allows the users to chat synchronously using a text-based chat service. In fact, this version of this book was written by collaborating in *Docs*.

Wiki

A good example of a wiki-based service is *Wikipedia* (https://www.wikipedia.org). wiki (meaning quick) pages can be created and edited by multiple users working collaboratively on a writing project. Writers from around the world can connect to the page and edit it, with changes and writers' identities (like in Google *Docs*) being logged. Wiki pages can provide special opportunities for writing tasks requiring a great deal of communication and collaboration. Other good examples of free wiki services are Pbworks (http://www.pbworks.com/) and Wikidots (http://www.wikidot.com/).

Websites

With so many free online web-building services like *Wix* (http://wix.com), teachers can task students to create a

website as a collaborative project. This activity can have students planning, designing, and publishing content while engaged in communication and collaboration at all times. The product, which is an online website, could be particularly motivating for students. Another free web-building website is *Weebly* (http://weebly.com/).

MMOGs

Multiplayer online games, which Pearce, Boellstorff, & Nardi, 2011) call "the medium of the twenty-first century" (p. 66), require a great deal of communication and collaboration among group members in a highly competitive gaming world. In these games, members usually communicate over text-based forums, text and audio chat rooms, or other third-party communication applications such as *Discord*. Therefore, all types of synchronous and asynchronous communication tools can be employed by members for smooth and coordinated gameplay where everyone shares tactics and strategies, mentors new players, supports others, completes quests, and strives to win. *Quest Atlantis Remixed* (http://atlantisremixed.org/) is an educational MMOG, while *World of Warcraft* (https://worldofwarcraft.com/) is a serious game.

Social media

Like websites, social media applications provide a great opportunity for students to create, share, comment, and receive feedback. Students may already be using social media applications such as *Facebook* (http://facebook.com), *Twitter* (http://twitter.com), or *Tumblr* (https://www.tumblr.com/) to connect to friends and family; therefore, using this authentic technology in the context of class could be beneficial for pedagogical

purposes. Teachers can task students to create a social media page for the class and collaboratively maintain it.

Software

Although the Internet is the most obvious source for collaboration tools, as shown previously, software packages can also support collaboration and communication. In addition to the software packages already mentioned, common software packages such as word processing programs can be used for collaboration. For example, the "comment" function in Microsoft *Word* allows learners to work together and comment on each other's work.

These tools support opportunities for English language learners to work with others for a wide variety of tasks and collaborations. The use of such technologies can clearly help teachers meet the CALL principles. More important than how they connect learners, however, is why and with whom learners connect.

► Conclusion

This chapter has presented some of the ways that language learners can interact socially and shown how both teachers and learners can use technology to support and encourage collaboration. Each of the activities provides students with specific roles to play that are important to the outcome of the task, gives them choices so that they must discuss and plan, and provides them with important reasons to listen and respond to each other. Even these task features do not guarantee that learners will interact and learn, but chances are better that they will than if the tasks are not planned to enhance interaction.

► Teachers' Voices

As far as other activities that might be helpful, I think you can also have the students record what they want to say in a greeting card from American Greetings (https://www.americangreetings.com/) and send the e-card to each other (since your focus at this point seems more communication and getting them motivated), or they can even record what they want to say to an author and send it by e-mail.

These are the roles I use in my classroom—of course there are others and some worded differently, but these roles work well for my fifth graders: Manager, Timekeeper, Cheerleader, Taskmaster, Reporter.

Different titles are used depending on the activity: geographer, cartographer, text media, and so on. Most titles revolve around: recorder, presenter, timekeeper, organizer, facilitator. I give these roles names that are appropriate to the task.

First and foremost, just because students are in high school, it does not mean they are prepared to work with the latitude of issues associated with open forum discussion on the Internet; this is scary. Therefore boundaries must exist with regards to technology in K–12. I would not, however, rule out using e-mail in a structured, purposeful lesson. In terms of building language, MSN Messenger is a great way for students to build their automaticity. I have found when students are really engaged that they amazingly come up with vocabulary and words that they themselves were not aware they knew.

The second reason I would structure and use e-mail and MS-type chatting in elementary school is to narrow the socioeconomic gap; other students have access to this in their homes and it provides rich experience that students may need later on down the road.

For my science class, I have decided to divide my class into five groups of three and task each group to create a Wiki page about a particular animal they have learned about. I think they will like this activity.

I think students' using their cell phones in the class is a distractor. During recess, I see my students are always busy playing games on their cell phones. I need to talk to their parents and have them turn their cell phones off when entering the class.

Chapter 5
Creativity and Production

► Focus

In this chapter you will

- reflect on the benefits of language production for language fluency and accuracy
- understand links between creativity and production and student engagement
- learn techniques and guidelines for supporting student creativity and production
- explore activities and tasks that support student creativity and production

As you read the anecdote below, try to figure out all the ways that students can receive language input and produce language during the project.

High beginning-level English language learners in Mr. Lin's class are developing television and print ads for new products that they designed during a unit on advertising. Each team of three students has created and scanned a drawing of their product, and they have also developed a life-sized model for possible use in their TV commercial. Most of the students are now writing their ads. Mr. Lin watches as some of them are looking at commercials on the Internet to get ideas; other students seem to be debating the wording of their ads. By assigning each group member a role, Mr. Lin has made sure that each student is responsible for an important piece of the project. Because he also has a rule that students must ask three other students a question before they bring it to him, he sees a lot of intergroup interaction. When the students have completed the scripts for the TV and print versions of their ads, they will try them out on another group, who will suggest changes and other ideas before they go into production. Students will use the ESL program's new digital camera to film their TV ad and then edit it with either *iMovie* for Mac or *OpenShot Video Editor* for PC. They will create their print ad using *Microsoft Word* software. The final versions of both ads will be posted to the Web, along with an explanation of the assignment and a reflection on the different processes and ideas behind the two types of ads. Students will then have the opportunity to obtain feedback from their classmates and from outside experts.

► Overview of Creativity and Production in Language Learning

Creativity and production are related to many of the

standards and foundations for effective language learning. For example, although most researchers agree that *input* is important for language learning (see, e.g., seminal articles by Long, 1989, 1996; Pica, 1994), others have explored the important role of *output*, or language production, in language acquisition (Holliday, 1999; Quinn, 2018; Swain, 1995). Language production is important because it allows students to test their hypotheses about how language works and encourages students to use their preferred learning styles to gain additional input in the target language.

Social interaction not only enables valuable language input, but it also enables valuable language production. It allows learners to understand when others find their language incomprehensible and gives them an opportunity to explore various ways of making themselves understood. Feedback from others can also help them notice the discrete grammatical items that they need to focus on to improve their language. Language and content output can take many forms (e.g., speech, graphics, text), and it can range from essays to multimedia presentations.

Producing language assists the language learning process in many ways, but production does not in and of itself promote learning. For example, production can include relatively meaningless activities such as reciting answers to uncontextualized grammar drills. Creativity implies something more—doing something original, adapting, or changing. In this sense, a sentence or a presentation in language classrooms can be creative. To be creative, students need opportunities for intentional cognition; appropriate support, scaffolding, and feedback; and control over language aspects that they will use in their production. Working with others (see chapter 4) often facilitates creativity.

► Digital Creativity and Productivity Tools

Digital *productivity tools* are those that maximize or extend students' ability to create products and to problem-solve; they also "expand opportunities for expression" (Male, 1997, p. viii), which is an important principle for language learning. Productivity and creativity tools support students in constructing models, publishing, planning and organizing, mapping concepts, generating material, collecting data, and developing and presenting other creative works. Even in productions that do not use language per se, learners work through the language to create a product.

Examples of commonly used productivity tools include word processors, databases, spreadsheets, desktop publishers, graphics programs, web page creators, podcast development apps, and, in some instances, e-mail and other communications technologies. These technologies enable English language learners to choose their own content and provide templates and functions that scaffold their presentation of content. These tools do not make learners more creative or their products better, but some research shows that these tools can encourage learners to produce more and to use their creativity. The more creative output students produce, the more opportunities they have to learn.

Productivity tools also provide opportunities for teachers. All of the technologies mentioned, along with simple grading programs, worksheet- and puzzle-making software, and presentation packages, help teachers to create products to use in their classes and to improve their instructional processes. Teacher and student products and the results of their creative processes abound on the Internet. A review of some of the Web sites that contain such examples can inspire teachers and learners to integrate and use production and creativity tools in their teaching and learning. It must be noted, however, that merely using these tools does not result in language learning. Teachers

must carefully plan and adapt activities and tasks so that they meet engagement principles and language learning goals.

► Supporting Creativity and Production

Below are two instructional techniques that can support engagement in language learning tasks and facilitate student creativity and production.

1. **Do not do what students can do**.
   Teachers must give students choices and support their autonomy by allowing them to learn by doing. In many classrooms, however, teachers take full responsibility for planning lessons, developing materials, directing activities, and assessing students. Allowing students to help with the design and delivery of instruction gives them more opportunities to interact, problem-solve (discussed in chapter 6), and use language creatively. Teachers can think - do I need to do this, or is it something that my students can do? Even younger learners can help to create rubrics, choose topics of study, and even develop creative ways for their peers and them to practice language. The more the teacher can follow this technique to create a balance of structure and autonomy in the task, the more likely learners are to be engaged and learn.
2. **Let learners show what they can do, rather than what they cannot.**
   This era of high-stakes testing mandates that teachers know what their students cannot do. They often assess students on very discrete language items using multiple choice, true/false, or fill-in-the-blank answers. Although these tests can provide certain kinds of information, allowing students to produce language or

content in a variety of ways that support their interlanguage (their current level of language) builds on student successes and helps students to understand that they can communicate in different modes. At the same time, this practice demonstrates to students that they have control over content and language. This does not mean to ignore student areas of weakness, but it does suggest that teachers might use student strengths to help them address the areas that need attention.

In this chapter's opening scenario, Mr. Lin's language learners have the opportunity to produce language both orally and in written form, and they produce language and creative content in many ways. They make decisions, ask questions, write dialogue, draw, role-play, direct, suggest, critique, and disagree. Students who are not as competent in one language area may choose to produce language in other areas, but none of the students is exempt from working toward the final goal. By requiring that learners ask each other for help, Mr. Lin is not doing what he knows that his learners can do; rather, he is providing frameworks of support. Overall, the task he has created integrates many of the engagement principles and technology standards (see chapter 1 for a discussion of these).

►Tips for Designing Opportunities for Creativity And Production

There are several other important ways to design activities that support student creativity and production and therefore afford opportunities for student engagement in language learning. First, students must understand how to use the computer tools. Instructions should be modelled and presented in a variety of ways—graphically, orally, and

in text at a minimum. Students must also understand the opportunities that each digital tool affords. To this end, teachers and learners can brainstorm the kinds of tasks that can be accomplished with tools such as a database program, a word processor, or a video editor, and they can continue to add to the list over time so that students are not limited in the ways in which they produce content and language. While learning the technologies, students are also learning through English, both useful goals in the CALL classroom.

►Activities That Encourage Language Creativity and Production

Many of the activities presented throughout this book also support creativity and production, especially WebQuests (see chapter 1 and http://webquest.org for more information). These activities can also integrate principles for language learning and engagement, including social interaction, authentic tasks, and learner autonomy.

In developing tasks and activities that encourage creativity and production, teachers and students should reflect on why to use technology. As discussed earlier, if the technology does not make the process or product more effective or more efficient, teachers and learners should consider other tools. For example, English language learners are sometimes asked to produce a text-based Web page or blog to introduce themselves to others. Because this task limits the types of language that learners produce and the creativity with which they can use language, it might be more useful, depending on the teachers' goals, to have students develop richer products such as video footage, a digital photo montage, or a short multimedia book. However, with these tasks learners can get caught up in the graphics and lose opportunities for language learning—teachers must make sure that the task is devised so that learners focus more on language.

In another project, where secondary school English

language learners create multimedia books for elementary school English language learners, the multimedia features can make the text more accessible, provide many types of input and opportunities for output, and make an elementary school audience more likely to respond to the content. Teachers can help learners use technology's features creatively to provide younger learners with a more complete literacy experience.

Helping language learners to create and produce effectively might seem like an overwhelming task at this point; however, by focusing on the principled use of technology, the number of possible tasks is almost limitless. Although this text tries to avoid focusing on the technology over the task and goals (in other words, technocentrism), it divides the examples below into three categories to demonstrate that creativity and production result not from the technology used, but from the task structure. The example task categories are

(a) those that require basic technologies,

(b) those that call for the use of relatively more sophisticated technologies, and

(c) those that require the use of advanced technologies.

The examples below do not include the whole lesson plan and are not addressed to specific grade or language levels, although some possible language objectives are listed for each activity. All of them can be adapted to use different technologies and to work in different contexts. Important to note is the ways that they emphasize task engagement principles.

► Creativity and Production With Basic Technologies

Create a Wanted Poster

This activity can help students to understand U.S. culture and to practice present tense and forming sentences. Students complete the following steps:

- find a photo of a person (magazine,

Web, or personal). The teacher can choose a theme if desired (movie stars, historical figures, etc.).

- develop text about that person that fits the format of a Wanted poster
- type the text using appropriate fonts and styles, leaving room for a photo
- affix or insert the photo and post

Students can get very creative with this activity, especially when they use photos of movie stars, international leaders, and white-collar criminals and are allowed to make up whatever details they want. (*Time* magazine is a great place for photos; see http://www.time.com/.) If students are using real biographical information (perhaps researched on the Web), the teacher can follow up by covering the photos and having learners guess who the wanted character is from the text. See Figure 5.1 for a student example.

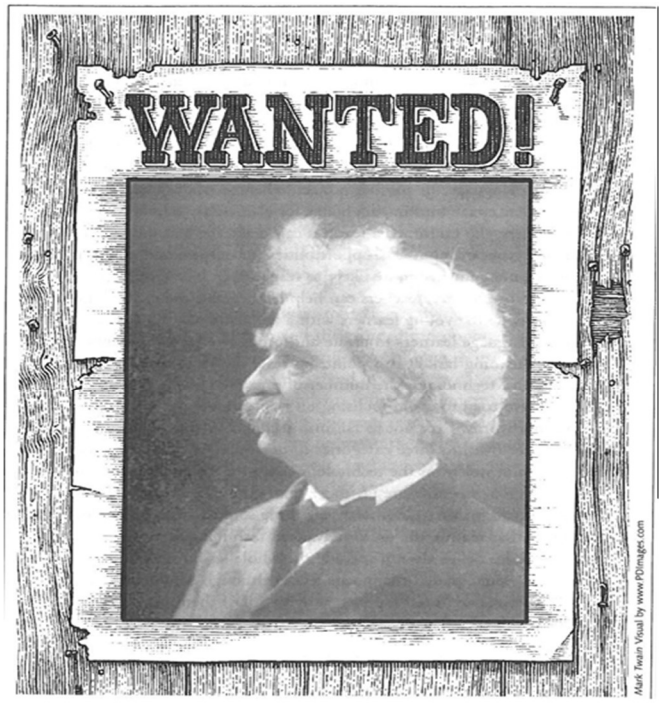


Figure 5.1. Sample Wanted poster.

Produce a Résumé

This activity will help learners to practice listening for discrete information, organizing writing, forming questions, and using past tense. Instead of typing their own résumés, learners

- develop an interview scheme based on information required for résumés
- interview a classmate
- create their classmate's résumé using a word processor
- read and suggest revisions to their own résumé
- revise the résumé they typed

- present their classmate to the class

This activity facilitates extensive interaction among students and helps students to understand elements of résumés. It keeps learners engaged throughout the task, and it can be seen as a very authentic task.

Create Holiday Cards

This activity will enable students to practice with culture, slang, and audience. They invent their own holidays, and then

- develop symbols for that holiday
- decide on the holiday's slogan
- create a holiday card(s) addressed to a specific audience(s) using a word processor and any available graphics. If available, they can be printed on greeting card stock.
- develop a plan for marketing their holiday and share it and their cards with peers and others.

During this activity students learn about cultural (and political) traditions while addressing their own interests. For many of them, holiday cards will be authentic, and the freedom that they have within the structure of the task can provide them with an effective balance of structure and autonomy. Happy Peanut Butter Day, everyone!

Develop a Simple Newsletter

This activity, which is common in both ESL and EFL classes, enables students to practice forming questions, scanning, reporting, and using adverbs of time. Students complete the following steps:

- collect information through interviews, literature reviews, and other means

- type their articles using a word processor (many of them have templates)
- take any photographs necessary or available
- work with classmates to edit, headline, and lay out the articles
- copy and deliver the newsletter to relevant parties

Some of the most interesting newsletters are often the simplest ones. Again, this offers teachers the opportunity to provide different levels of structure and autonomy, balance challenges with skills, and engage learners deeply in a task that they are interested in.

Generate T-Shirts and Bumper Stickers

This activity will enable students to practice idioms, slang, and humor. Students can accomplish it in many ways, but in general, they

- develop slogans or sayings based on their study of idiomatic English, the purpose for displaying slogans, and their own personal experiences
- revise based on classmates' or others' comments
- type their sayings into a word processor
- print with special bumper sticker or t-shirt iron-on paper
- Display

Even students at beginning proficiency levels can come up with some witty and thoughtful sayings for this activity, and it can be integrated easily into content-area study. The engagement principles are clearly embedded within the task; for teachers who want more structure, perhaps they can present pre-selected idioms to students in a more traditional way and then have students practice with a task like the above.

► Creativity and Production with More Sophisticated Technologies

Books for Younger or Less Proficient Students

The task, described previously, enables students to practice narrative, discussion, and reading aloud. Students complete the following activities:

- develop stories in cooperative groups in a chosen genre
- use a book-making app or Microsoft PowerPoint to develop multimedia texts
- illustrate and edit with peers
- share with the intended audience

Addressing an authentic audience that differs from one's peers requires students to think about how to do so, including not only what specific vocabulary and forms to use but how their audience will best understand the narrative. Learners can include animated characters, short video clips, and different font sizes, colors, and texts in ways that they think will engage their audience with the text. They can even make bilingual texts if they have the capability. This task includes social interaction, student interest (in the technology or in the text or both), authenticity (books for younger children to access), autonomy within structure, the opportunity to work at any level of language and technology; all of these can support learners' task engagement.

Action Mazes

In this activity, students can practice connectors, story writing, and discussion. In collaborative groups, students

- decide on a topic and layout for their maze
- write the text and decide how it will branch at decision points
- find or create necessary graphics

- create the maze in a program such as Microsoft PowerPoint or Quandary (Half-Baked Software, 2009), which is software specifically made to author action mazes
- share it with peers

Action mazes (Egbert, 1995; Healey, 2002; Holmes, 2002; also see Teachers' Websites Online, http://www.teacherswebsitesonline.com/Extras/Action_Mazes.html, 2018) facilitate discussion, collaboration, and creativity in both the creators and the users, and with effective planning can easily engage students in the task..

Ideal Neighborhood Map

This activity enables learners to practice present tense, local vocabulary, and culture. In teams, they

- brainstorm features of their neighborhood that they like
- reflect on what is missing and what else they would like to see
- agree on what their ideal neighborhood would look like
- use a program such as Minecraft (Mojang, 2009) to create the map (also see http://larryferlazzo.edublogs.org/2008/12/03/the-best-map-making-sites-on-the-web/ for Larry Ferlazzo's list of "Best Map-Making Sites on the Web)
- present to peers, trying to get votes as the ideal neighborhood or most nearly ideal

This activity can lead to many others in which learners talk about their hopes and dreams, or their real neighborhoods, or even how cities should be built, and it could also be the precursor to a community service learning activity. When learners get to share their

opinions with others, the task can meet many of the principles for language task engagement.

Us Presentations

Learners practice comparatives, descriptive vocabulary, and presentation skills. In heterogeneous, cross-level, and cross-age groups, learners

- brainstorm similarities and differences among themselves
- choose a focus for their slide show
- design their show on paper, each learner creating at least one slide
- create the multimedia slide show using presentation software like Prezi, PowerPoint, or Powtoon
- present the show and answer questions

By creating and producing with others, engaged learners improve their language abilities while also increasing their cultural capital.

Interactive Quizzes

This activity enables learners to practice forming questions and statements and explaining. Working alone or in groups, they

- choose the format, questions, and answers (with feedback) for their quiz on a course topic
- create their quiz in Hot Potatoes (Version 6.0), Jeopardy (Jeopardylabs.com; see Figure 5.2), or another quiz-making app
- give their quiz and take other students' quizzes to help them study for the teacher's version

This activity is a good example of letting students show what they know and not doing what they can do; an engaging drill-in-disguise! It also reinforces right answers and helps learners to understand plausible mistakes.

Figure 5.2 Making a vocabulary quiz in Jeopardy (Jeopardylabs.com)

Creativity and Production with Advanced Technologies

New World Catalog

Learners practice future tense, conditionals, and descriptive language. Working together, they

- design products for the world that they would like to live in (e.g., if they choose a less polluted world as their goal, they might design clean cars, baby diapers that disintegrate upon removal, and sun-powered refrigerators)
- write text and add graphics to advertise each product
- put the catalog together using an advanced desktop publishing program
- print in color and share or post

This activity can also be done more simply using a word processor. During this activity, students need to reflect, predict, and create using the target language. Providing learners with opportunities to be creative can prove to be very engaging for them.

Digital Montages of Life in the United States

In this activity, students practice spoken narrative and fluency, and they learn about U.S. culture. To complete

it, they

- plan and organize by creating a storyboard using a brainstorming and planning tool
- take photos of their subject using digital cameras (still or video)
- record the voiceover
- compile their movie with video creation software, such as *iMovie* (Mac) or *OpenShot Video Editor* (PC)
- post to the Web, present to peers, trade with other schools

These technologies used to seem advanced but only because they were expensive. Today there are versions that even elementary school learners find easy to use, whether they have experience or not.

►*Coauthor a Story Using Electronic Conferencing Software*

This project enables learners to practice turn-taking and other pragmatics, narrative or storytelling, and editing. Working with learners at a remote site, they use desktop video conferencing or text conferencing to

- collaborate to decide on a topic and a plan using software such as *GoToMeeting* or *OpenMeetings*
- assign roles
- write and edit the story
- post it to an agreed-upon site for further comment from other groups

This kind of activity requires the learners and the teacher to persevere and be patient through any technical glitches, but the results can be worth it, and the social interaction definitely is.

Assemble Electronic Portfolios

In this activity, students practice reflection and

presentation of language, and teachers have an opportunity to assess student learning. Teachers and students

- agree at the beginning of the term on the portfolio contents and format
- save portfolio components in electronic formats
- organize the components in either a learning management system (LMS) like *Canvas* or *Blackboard*, a simple website development app such as Wix.com or Weebly.com, or an app made specifically for digital portfolios

Students can take responsibility for their own learning in language, content, and technology skills, which can function to engage them in the overall task.

If teachers have a good reason to do it, teaching learners through and about advanced technologies can help them accomplish many language and content goals while also teaching them valuable technology skills.

These examples are only a few activities that facilitate language production and creativity. This book and the related Resource Guide contain many others and the Web has even more examples. Teachers who want to design CALL activities that promote creativity and production should keep in mind the framework for engagement in language learning presented in chapter 1 and reflect on opportunities that the activities offer students to create and produce.

► Tools for Creativity and Production

The tools noted in the examples described earlier are *content-free;* in other words, they do not have any preset substance. With a little creativity, however, the teacher can use almost any computer tool to facilitate production and creativity. Even grammar drill and practice

software can support creativity and production if used in a principled way. Here is an example of one way to do that (adapted from Egbert, Yang, & Hogan, 2003):

Two students are working on a 10-question grammar drill about past-tense verb forms. The program presents each fill-in-the-blank question separately, uncontextualized from the rest of the sentences in the drill. Student A works at the computer; Student B sits close but cannot see the screen.

- Student A reads each question presented on the screen while Student B writes the question down on a piece of paper, writing odd numbered questions on the left side of the paper, even numbered on the right.
- Student A reads the four possible answers (or reads the first answer, and if the students think it is wrong, goes to the next, and so on). The students choose the answer together, Student A checks it with the software, and Student B writes down the correct one and repeats the completed sentence out loud.
- The paper is divided between the columns. Student A takes one set of sentences and Student B takes the other. Now Student B sits at the computer, while Student A sits close by.
- The students interact, not showing each other their sentences, and try to put them together into a cohesive story. They can use dictionaries and any other resources they need. Student B types the story as they agree on it, and reads it aloud for Student A's approval.
- They share their stories with other groups who used the same sentences for their stories.

This activity works with adaptations even with large groups of students in one-computer classrooms. In such a case, while the teacher or other person reads the sentences, students can take the role of A or B to write down odd or

even numbered sentences. They then pair up to write the story. During this activity both students have had multiple and multimodal exposure to all of the sentences, and both have produced each one more than once. Because their sentences have different contexts, they must be very creative to pull them all together into a story that makes sense.

► Conclusion

This chapter discussed the importance of production and creativity in language learning and presented examples of ways that computers can assist learners to produce and create. Production of this kind takes time, but it is time well spent when even learners with beginning proficiency in the target language are involved in thinking creatively about language and content and also working on the language skills that make their products presentable to an authentic audience.

► Teachers' Voices

Filamentality is a program that helps educators learn how to create their own websites.
http://www.kn.pacbell.com/wired/fil

The only thing I want to add about making a WebQuest is the server space. Yahoo and other services provide free server space. If you want to put your WebQuest online, those two can be your option, too.

We did an "All about me" activity where the students created a presentation about themselves. My global languages class created presentations on Jamaica when we researched the country. A third activity that my students have done was create an informative presentation on volcanoes. The students enjoy this because they are able to

create colorful backgrounds, interesting transitions, sounds, and animations with their project.

I ran across a site that recommends sites for your students to evaluate. One of them was the AFDB or the "Aluminum Foil Deflector Beanie, An effective, Low-Cost Solution to Combating Mind Control." Great site! Anyway, after discussing it with my principal, I managed to "con" another teacher into going along with my plans and during my 7/8th Leadership class and her 7th Language Arts class, we told the students that we were going to play a joke on the principal and all wear Aluminum Foil Deflector Beanies to lunch. My students really got into the game and created outstanding aluminum beanies, and as a group we went to lunch to surprise the principal. One of the students told me it was the "funnest" class ever, not knowing that the prank was really on them. The principal requested that I do it again next year as part of my curriculum! I have found so many things to do with my students, it's hard to pick!

My wife is a dancer and a person who values the creative process. She has vast experience in unlocking people's creative potential. She has a quote, from an unknown source in her office: Creativity is the balance between the expected and the unexpected. I agree with the two techniques addressed in this chapter, but I would like to add a third. We forget that it is difficult to be creative without some mastery within the field. Our creative geniuses have all been leaders within their field. It was from their mastery that they were able to go beyond mere correctness and into the realm of the unexpected and unknown. So I propose a third instructional technique to support creativity, a focus on mastery.

It is really hard to get a classroom full of elementary kids

to complete some of these activities with some of the productivity software. In the past, I have really had a hard time with that and felt I just couldn't take the time from the school day to do it. I got a grant about 4 years ago to purchase little battery-powered word processors for each student. They are called AlphaSmarts. With those, everybody does their 1st draft on the AlphaSmart and then the revisions are really quick. After editing, they then go to the computer for formatting. It works really well.

Chapter 6
Inquiry and Problem-Solving

► Focus

In this chapter you will

- reflect on the kinds of skills students need to develop and use in language learning and the roles that inquiry and problem-solving play in this development
- learn about frameworks and technologies that can support inquiry and problem-solving
- reflect on content and language needs that can be met through computer-enhanced inquiry and problem-solving

As you read the scenario below, reflect on how problem-solving and language learning complement each other.

Ms. Petrie's sixth-grade ESL class has voiced a desire to learn more about U.S. culture. Throughout the first part of the semester the students made a list of questions that they would like to ask long-time residents of the United States. Ms. Petrie is working with the students to develop ways to answer their inquiries. She is basing the project on a series of pictures and materials downloaded from *Pics4Learning* (https://www.pics4learning.com/) on U.S. culture. First, she will show some of the pictures to help students reflect on what they really want to know. Second, she will work on techniques to help them develop ways to find out information. Each student team will make a project plan in which they will outline their goals, list their questions, and describe how they will conduct their research, what resources they will use, and how they plan to present the results. The class decides that each group will create a slideshow using *Wixie* (https://www.wixie.com/) in which they will present their results using a mix of audio narrations, pictures, and text. Also, the class decides to have a mini-conference where they will present their slideshows and discuss their results.

Team 1 has decided to interview native English speakers to learn their views about English language learners. Team 2 has decided to survey what it is like to be a seventh grader. Other teams will approach community members to learn more about U.S. customs

and beliefs. Each student will have a role.

Students will keep a journal in which they record language, content, and process questions for discussion. In this way, they will receive helpful feedback and support during the project from peers and the teacher. The class has also created a *Facebook* group where they can post their questions and receive feedback from their peers and the teacher during this project.

► Overview of Inquiry and Problem-Solving

Inquiry, for the purposes of this chapter, is defined as a process of discovery in which students go through iterative stages of questioning, reflecting, and research. Students can participate in many types of inquiry activities, including, for example, library research on historical events, constructing family genealogies, examining how their community supports environmental health, and exploring how different cultures are treated in their school.

Problem-solving is often viewed as a component of these inquiry activities. Although difficult to define precisely, problem-solving is generally understood to include skills such as making accurate observations, finding and organizing information, predicting, synthesizing, and using other higher order thinking skills (HOTS) to find solutions.

Inquiry and problem-solving have been proposed as necessary for language learning for many years (Brown, 1994; Chamot, 2005; Marsden, Mitchell, & Myles, 2013). The *TTS-LL* (Healey et al., 2011) standards for Goal 3 and the ISTE standards (ISTE, 2018, see Standards 4 and 5), also list inquiry and problem-

solving as necessary skills. Why do language students need to problem-solve and conduct inquiry?

First, problem-solving and inquiry help students learn metacognitive strategies that are employed to manage one's learning (Oxford, 2003, 2016), and students who can use these strategies are typically better language learners. In addition, research indicates that learners remember better what they do rather than what they receive passively, and that is the rationale behind active inquiry (Park & Choi, 2014, see chapter 4). As learners work to construct the language that they need while participating in problem-solving and inquiry tasks, they acquire additional languages in much the same way as they acquire their first—by trial and error, reflection, and personal involvement.

Second, in lessons where language is the content, students can apply strategies based on problem-solving and inquiry to recognize patterns, ask important questions, and make conclusions about language. Research shows that these skills should be acquired from both participating in problem-solving activities and explicit teaching before problems are presented (for a review, see Janzen, 2008).

Computer technology use can enhance language and content learning during inquiry and problem-solving activities in English language classrooms. First, computer use can support inquiry. For example, the free encyclopedia *Wikipedia* (https://www.wikipedia.org/) provides an online database with multimedia content for learners to see, listen to, read, and interact with the information that they are seeking. This format makes the language and content accessible for use in the

problem-solving process. Another example is database or spreadsheet software (such as Microsoft *Access* or Google *Sheets*) that enables students to locate and log the data that they have collected during their inquiry. This software allows students to have a record of their process and the language involved in it. In addition, computer technologies can help students present the results of their inquiry projects.

Problem-solving tools abound on the Internet, for example, *MindTools* (https://www.mindtools.com/), *TeacherVision* (https://www.teachervision.com/problem-solving), and *Common Sense Education* (https://www.commonsense.org/education/). Figure 6.1 presents some of the tools available through *Common Sense Education*.

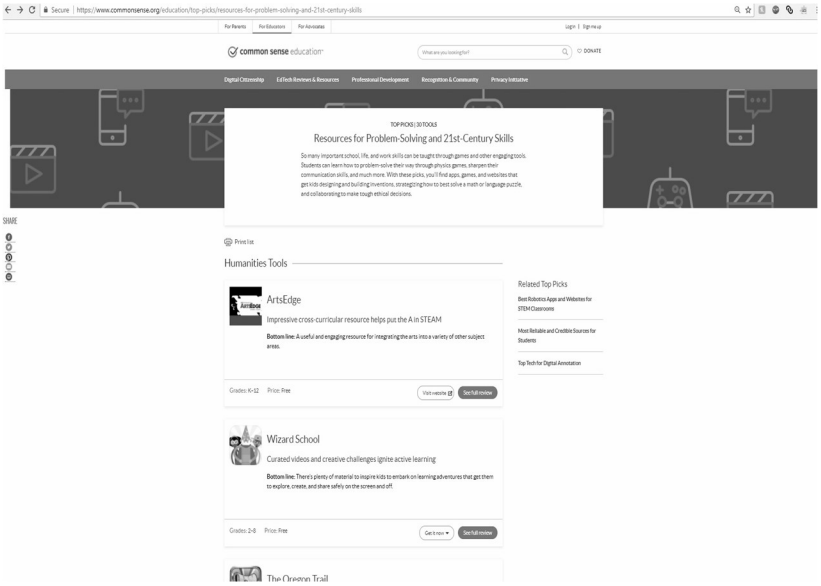


Figure 6.1. Some of the useful inquiry and problem-solving tools available from Common Sense Education.

Some publishers such as *Common Sense Education* (http://teacher.scholastic.com/) offer a variety of open educational resource (OER) applications and materials appropriate for various grades, types of content, and diverse learners that provide scaffolding to solve problems in areas such as the environment, social relations, and immigration. For example, *Ansel and Clair: Little Green Island* (see the shortened link at https://goo.gl/Lq65Bz), designed for grades 2-4, is an ecosystem simulator game that can help students individually or in groups to use language to plan and organize during inquiry around fighting pollution. In other words, computer-based resources can provide data on a wide range of topics that is accessible to students at different levels and with different learning styles and strategies, support the efficient organization of data, facilitate an organized and accessible presentation, and present problems, all while tracking process and progress. Many ESL and EFL learner textbooks currently incorporate problem-solving and inquiry-based projects. Why, then, should teachers use technology?

Keep in mind that if the technology use does not make the language learning process more efficient or more effective, teachers should work to find more appropriate tools. As noted in the examples, however, computer use can make language learning through inquiry and problem-solving more effective and more efficient by enabling learners to use language to develop multimedia presentations; to demonstrate ideas; to calculate, track, and organize; to access information to be transformed; and by facilitating a host of other tasks.

► Steps for Inquiry and Problem-Solving

Although problem-solving and inquiry are technically different, they require many of the same skills. At a

minimum, students need to recognize the language that they will need and the processes involved. Critical thinking skills are also crucial for successful inquiry projects. Teachers can model some critical thinking skills, such as

- analyzing arguments, claims, or evidence
- making inferences using inductive or deductive reasoning
- judging or evaluating
- making decisions or solving problems
- asking and answering questions for clarification
- defining terms
- identifying assumptions
- interpreting and explaining
- reasoning verbally
- predicting
- seeing both sides of an issue (Lai, 2011, pp. 9-10)

Critical thinking skills do not necessarily come naturally with second language learning, and they are culturally situated, so students need to learn and practice them before, during, and after each step in the process. According to Molnar, Boninger, and Fogarty (2011), an environment that "encourages students to ask questions, to think about their thought processes, and thus to develop habits of mind that enable them to transfer the critical thinking skills they learn in class to other, unrelated, situations" is where critical thinking is cultivated (p. i).

Although sources describe the steps in the inquiry process differently, most sources include the same five basic steps of establishing *orientation*, *conceptualization*, *investigation*, *conclusion*, and *discussion* (Pedaste, et al., 2015). These steps are addressed to the learner and include:

1. What are you interested in? Ask a question that has

meaning, define the problem, and figure out what you need to do to answer it.

2. Investigate by researching. Plan, gather resources and information, and record what you have found.
3. Create new ideas, thoughts, and directions for action. Make sense of the information you have gathered by summarizing, synthesizing, and interpreting.
4. Discuss with others. Interaction can shed new light on the question, the investigation, and the process. Share what you have learned and then use the feedback to return to the process.
5. Reflect on the inquiry process. Did the process lead to unexpected conclusions? Is there something else that needs researching? Has the problem been solved?

For younger or less proficient learners, Freeman and Freeman (1998) present six steps that follow these same basic guidelines. They call this the "Wonderfilled Way of Learning," and the steps are addressed to the teacher:

1. Ask the students: What do we know about_____?
2. Ask the students: What do we wonder about_____?
3. Ask the students: How can we find out about_____?
4. With the students, work out a plan of action, and, at the same time, work school district curriculum requirements into the unit.
5. Plan an event to celebrate what you have learned together.
6. Learning is continuous. From any unit, more topics and questions come up. Begin the cycle again. (pp. 138–139)

Regardless of which set of guidelines you and your students follow, inquiry projects can be used to support language and content learning.

In the chapter's opening scenario, Ms. Petrie guides the students through learning experiences. She has planned that throughout the project, they will not only learn techniques for inquiry such as planning, brainstorming, reflecting, and evaluating, but through their interactions, they will also acquire a variety of language content and structures. These activities facilitate many of the CALL principles—for example, students have many opportunities for language input and output, they have many choices (structure/autonomy), they are motivated to learn because they are answering meaningful questions (authenticity and connection), and they interact with peers and community members (social interaction and feedback).

► Tips for Creating Opportunities for Inquiry and Problem-Solving

Two tips will help teachers develop effective CALL activities, particularly problem-solving and inquiry projects. First, teachers should never allow the tools to determine processes or products. In other words, they should first determine the language and project goals and structures, and then choose the appropriate tools, whether technology-based or not. Second, teachers need to help students fill individual roles and responsibilities within their groups so that each student has a reason to participate and to interact. These important tips will enable you to evaluate activities for problem-solving

and inquiry.

► Activities for Inquiry and Problem-Solving

Currently, many language programs incorporate research classes, problem- solving activities, and other inquiry-based tasks into their curricula. Because students' cognitive development, more than their language ability, determines learner readiness to participate in inquiry, the examples presented below are divided into two grade-level categories: elementary and secondary/adult.

General language and content objectives for these activities include learning and practicing vocabulary, pragmatics, and grammar such as forming questions and present tense; using descriptive language; scanning and skimming; and determining content and language needs for further study. Each category has one step-by-step example following the guidelines presented earlier and then descriptive summaries for other activities.

► Elementary Examples

The Insect World

After several questions from K–2 students about why bees sting,

Ask the students:

- What do we know about bugs? Students list the things they know—"They're icky," "They help plants," "Birds eat them," "They like picnics."
- What do we wonder about bugs? Students make another list—"Why do they sting?" "What do they eat?" "Why are there so

many?" "Why don't they like cold weather?"

- How can we find out more about bugs? Work out a plan of action. For background information, facilitate their use of interactive multimedia websites such as *The Bug Club* (https://www.amentsoc.org/bug-club/), *The Virtual Insectary* (http://www.virtualinsectary.com/), and *Insects* at *National Geographic Kids* (https://kids.nationalgeographic.com/animals/hubs/insects/). Be prepared to provide language or navigational support for students to understand and use these sites effectively. Students can also collect bugs, interview experts, or visit a local insectary.

Plan an event: Celebrate what you learned together. Perhaps go to an insect zoo where the learners are the docents and guides for other students.

Begin the cycle again: Revisit theme, using questions raised from this unit.

SimTown (2014)

SimTown software, which is part of SimCity series, enables students to build and maintain a town, and to ensure that the town thrives, they must balance resources, populations, and other factors. Unlike other Sim software packages, *SimTown* is appropriate for young children and does not contain adult situations or graphics. Each student in a team of four or so can play a role in this simulation—for example, a housing developer, a parks officer, a parent, a

business owner. The software itself is basically free of language, so teachers and students have the opportunity to focus the language learning at the appropriate level and content.

Instant GeoGame
(http://www.globalschoolnet.org/geogame/)

This activity, from *Global SchoolNet*, offers a web-based game for inquiry and problem-solving. In this interactive game, students are asked to submit a location description known as a clue, which is made up of latitude, longitude, time zone, population, January weather, January clothing, land forms, tourist attractions, and what it is famous for. After entering this information on the questionnaire provided on the website, the clues appear in a puzzle about the location that other students try to solve. The game provides a great opportunity for students to learn about geography and meet other students and teachers around the world. The site provides suggestions for teachers, help for students, and choices of puzzles. During the process, learners are exposed to language input in many forms, and they can use skills that do not rely solely on language to accomplish their goal. However, because the goal is cooperative, students are encouraged to interact and negotiate as they proceed through the puzzle.

Wonderful Word of Humanities (2018)

As was mentioned in Chapter 4, *Minecraft Education Edition* (Version 1.4) provides a world map packaged under the title *Wonderful World of Humanities*. Students can be sent off on quests exploring and

learning about different geographical locations individually and in groups in a safe environment. In addition to using a variety of maps and worlds on the software website, the students can also make their own world using the tools available to them, solving problems in the process in an inquiry-based manner.

Nearpod Field Trip (2018)

Nearpod (http://nearpod.com) is a presentation tool that allows teachers to create slideshows and synch them with students' portable devices (tablets or cell phones) or computers. The application enables the teacher to blend multimodal content for rich input, gauge students' understanding through different comprehension question types, and provide feedback. In *Field Trip* mode, the application allows the use of VR goggles (see chapter 3) to immerse students in 360-degree images of different contexts, such as exploring the ocean. *Field Trip*, as the name suggests, takes students on virtual field trips where they can follow the steps in inquiry-based learning to solve a problem. There are a host of grade-specific free materials on the application website (see Shahrokni, 2017, for a review).

►Secondary/Adult Examples

Evaluating Websites

Ask: How do I know if a website is trustworthy? Brainstorm definitions of *trustworthy,* reasons why trustworthiness is important, and how you might determine trustworthiness.

Investigate: Each team member should search the

Web for sites that are questionable (urban legend sites are great for this) and for sites that suggest how to evaluate trustworthiness, or teachers can suggest or summarize sites, such as *Critically Analyzing Information Sources* (https://guides.library.cornell.edu/criticallyanalyzing) at Cornell University.

Create: Summarize the data and make a *trustworthiness checklist.* Use the checklist to evaluate the questionable sites and come to some conclusions about them.

Discuss: Share the findings within the group and conduct further research as needed. Revise the checklist to satisfy any additional concerns. Reevaluate the original sites have others in the class evaluate sites using the checklist.

Reflect: Think about whether the solution answers the question sufficiently. If not, plan how to find a better answer.

This open-ended task encourages student language use and study as they voice their opinions, discuss current events, highlight their cultural foundations, explore the meaning of words, and create a useful product.

Solving History

"*Unsolved History*," a documentary TV series aired from 2001-2005 on the Discovery Channel (http://www.discovery.com) provides a great way to teach and practice inquiry-based skills. In this documentary, a group of explorer tries to solve global unsolved mysteries. A good example of one

of these mysteries is *The Assassination of King Tut* (Season 1). The video advances the theory that King Tut was murdered and claims that evidence is still available. It provides input from experts to shed light on the problems and solutions, a slide show, a photo tour, and clues for students to consider. When students have completed some of the examples, they can make their own locally focused unsolved history problems. Because it presents language in many different ways, the site is accessible to an array of students.

Grammar in Use

Not all language programs present language through content, and certainly many students are interested in better understanding target language grammar. When students have questions about grammar, they have many ways to investigate answers and many resources to use. For example, students can use free concordancing programs such as *Corpus Concordance English* (see chapter 2) and *The Corpus of Contemporary American English* (COCA, https://corpus.byu.edu/coca/) to gather and analyze authentic language data and draw their own conclusions (for more on concordancing, see Flowerdew, 2015). Learners can then share, explain, and compare their results with others.

► Conclusion

Within the framework of inquiry, teachers should determine activities and tasks at least in part using students' questions. The examples in this chapter are specific examples of activities that can be carried out in

myriad alternative ways. Even though learners enjoy the process of inquiry and problem-solving itself and find it motivating, effective language learning requires that the activities focus on language and content.

► Teachers' Voices

Another issue is documenting sources off the Internet. . . . I'm going to try using Google Scholar. There is an option under each search result that allows you to cite the resource according to five publication style sheet manuals (MLA, APA, Chicago, Harvard, and Vancouver). This should help my students see the format.

Right before Thanksgiving, I taught a signs/mapping/geography unit. It was a combination of life skills and English language learning. During this activity, one of my students told me a sad story. She said her father lived about 4 hours away, in Oregon, and she hadn't seen him in years and didn't feel confident driving down there. After practicing with an authentic map and learning more about street signs, she smiled a lot and said it really wasn't that hard. When we got back from break she told the class that she had, as a result of the class, driven down and visited with her father. This story inspired me and made me reflect on the lessons and activities and the impact they have, that I sometimes take for granted. The following quarter (that just ended), I took it one step further and showed students how to get into different websites that could not only provide maps, but also step-by- step directions, mileage, and even estimated time. They really enjoyed practicing planning trips and formulating presentations

for the class with pictures of places they would visit. The exciting part was hearing their purpose for visiting places like Florida, California, and Arizona. Some were actually planning to visit family, and for others, it was a dream and a goal to take their children to Disneyland or other parts of this country.

All my students come from a culture of poverty. Often, within this culture, critical thinking isn't exposed, modeled, or taught. When I first began teaching my students to problem-solve in math, it was as if they had never activated a part of their brain. They don't take the time to reflect on what the question is actually asking; rather, they assume they know and blurt out a response that has nothing to do with the question. If it is true that "learning how to approach and solve problems, and accepting that there is often more than one answer to a question or more than one way of dealing with it, is a key part of both education and language learning," which I believe it is, then our language learners need to acquire, be taught, how to think critically. This type of higher level thinking doesn't occur in a vacuum. It must be systematically and repeatedly taught, modeled, and practiced. This skill will assist [English language] students not only in their language learning but in all academic areas.

I think as we reflect on cultural diversity in our classrooms, especially with ELLs [English language learners], it is important to provide opportunities for these students to learn in a style and manner that is fitting and conducive to them. Not all students think and solve problems in a linear fashion (from point A to B to

C). Some students need to approach it from a different perspective, or a nonlinear approach.

Chapter 7
Content-Based Instruction

► Focus

In this chapter you will

- learn about content-based instruction
- review the development of language objectives for content-based lessons
- reflect on the use of content-based software for language classrooms

As you read the scenario, reflect on how using technology supports content and language learning in the project.

During her vacation, Ms. Peng, a middle school social studies teacher, completed the content based language teaching through technology (CoBaLT) professional development modules (University of Minnesota, n.d.). She feels that what she learned will help her to teach content and language more effectively for her seventh graders, some of whom are English language learners. Ms. Peng wants to put this new information to use while she is designing lessons for her upcoming U.S. history course. The school curriculum specifies that the course should include studying U.S. pioneers, and Ms. Peng feels that technology can not only help her to address the students' content and language needs but also help them to have some authentic pioneer experiences. After she develops her objectives for both content and language for her unit on pioneer life, she decides to use a networked version of Broderbund's old but popular (and free) *Oregon Trail* software (5th edition) to supplement the textbook.

To help students understand the issues and content necessary to have a successful journey on the Trail, she scans the museums on the *Museum of Online Museums* site (www.coudal.com/moom/) and finds a site provided by the National Museum of American History (Smithsonian Institution, 2002) where students use knowledge and logic to build a sod house, a common form of pioneer housing. To help her students reach the language objectives for the sod house lesson, Ms. Peng scans the graphic organizers available from Education Place

(www.eduplace.com/graphicorganizer) (Houghton Mifflin Harcourt, 2018) and CoBaLT (Cammarata, 2003). She decides that the "Decision-Maker's Flow Chart" (Cammarata, 2003) will support student language during the sod house exercise by integrating a writing component, scaffolding group discussion, and encouraging students to use lesson-compatible language. Although Ms. Peng will not use technology for all of her lessons, she feels that technology will help her learners stay engaged in pioneer life and meet the unit's objectives.

► Overview of Content-Based Instruction

Other chapters in this book have touched on the use of content-based software and websites to support learning activities such as inquiry, production, and communication. This chapter focuses on using content-based technologies for content and language learning. Content-based language instruction (also known by many other names, e.g., *content-centered instruction*) attempts to meet students' needs in both content and language, and it can occur in both language and content (at the elementary school level called *mainstream*) classes. There are variations on the theme, ranging from using content area texts and materials to offering adjunct language support courses along with the content courses to providing theme-based or sheltered language courses. In content-based language learning classrooms, content is purposeful, not just a vehicle to learn language; rather, the language is the vehicle for content learning (Crandall & Kaufman, 2002). In other words, content area teachers and language teachers need to learn some of each other's expertise so that they can not only meet their students' needs but also successfully work together in doing so.

Language teachers have many reasons to focus on

content. Because each content area has its own jargon, culture, and methods and employs language structures in specific ways, language plays an essential role in content learning. In addition, content makes tasks meaningful, authentic, and accessible to learners, thereby adding opportunities for engagement. It also helps learners to acquire academic language proficiency while learning language, rather than having to learn the language first and then learning academic concepts. Furthermore, each content area has its own standards, and the sooner learners begin working toward these standards, the more they can achieve.

During her unit on pioneer life, for example, Ms. Peng is working toward these social studies standards for middle grades while she is teaching the language needed to reach them:

- Describe ways in which language, food, crafts, customs, architecture, and the performing and visual arts serve as expressions of culture and influence the behavior of people living in the community.
- Discuss reasons why communities are established, how individuals and families contribute to the development of the community, and how communities change over time.
- Explain the major geographic features of the Western region and discuss the physical settings that supported permanent settlement in this region. (Social Studies Standards, 2016; available at https://www.dodea.edu/Curriculum/socialStudies/standards.cfm)

Ms. Peng is still working within the principles for CALL while she develops her content goals. The ultimate goal of integrating content and language is to help students become

academically proficient with the content of the discipline.

► Supporting Content-Based Language Instruction

The literature on content-based instruction includes many ideas for how to support both language and content learning. Below are two especially important techniques.

1. **Teach content in a culturally responsive manner.**
   Teaching in a culturally responsive manner means using literature that is culturally relevant (Howard & Rodriguez-Scheel, 2017), using first language cognates where it helps student comprehension, and adapting lessons to reflect the contributions of all relevant groups. For example, Mexicans, Puerto Ricans, and people of other backgrounds and nationalities fought for the United States during World War II, and lessons on the war should reflect this diversity. Web and software resources can help teachers be culturally responsive by allowing them to access culturally relevant information quickly when needed; these resources may also suggest places to include such information that the teacher might not have considered. Using software to make family connections can also help teachers understand learners' cultural resources. As part of the unit described in this chapter's opening scenario, Ms. Peng will include culturally relevant material in each lesson; for example, she will address who the pioneers were, where they came from, what contributions they made, and also what problems they caused.
2. **Adapt materials so that they are appropriate for learners, but do not sacrifice academic content.**
   To make materials more accessible to students, Echevarria and Graves (2002) suggest that teachers

- use graphic depiction
- outline the text
- rewrite the text
- use audiotapes

- provide live demonstrations
- use alternate books

It is important, in addition, that the grammatical structures in the adapted materials include the types of structures found in the original text.

Teachers do not have to make all of these changes themselves—they can enlist more proficient students to help, work in teacher groups and share materials, and find many of these materials already posted to the Web.

► Tips for Designing Content-Based Language Instruction

In addition to the two techniques just mentioned, an important skill for teachers to develop is the ability to create measurable objectives that address both language and content. The literature provides suggestions for how this may be done, and many tools exist for this purpose. One of the most useful is Echevarria, Vogt, and Short's (2017) *Sheltered Instruction Observation Protocol,* which helps to develop content-based language instruction by providing a thorough and pedagogically sound set of criteria. Another useful tool is the lesson plan outline used in the CoBaLT project database (Johnshoy, 2001). Each plan lists objectives for content and culture and then breaks language objectives into two categories: content obligatory, which students must use to complete the lesson, and content compatible, which are related language objectives that students can focus on. The lessons also include objectives for strategies and social development. To this set of objectives teachers can also add technology objectives that meet technology standards. In short, whether teachers formally document what their students need to learn using

these tools or use a less formal system, teachers of content-based language lessons must keep in mind both content and language objectives.

►Examples of Using Content, Language, and Technology Objectives

Language teachers may have difficulty setting content objectives, and content teachers may have difficulty setting language objectives. For this reason among others, language and content teachers should coordinate their instruction and cooperate in developing objectives. Finding lessons on the Web that have objectives outlined can also facilitate this process, as can practice developing objectives.

Examples of content and language objectives for CALL lessons follow; these examples also integrate sample content-area standards. The sample activity included in each example suggests technologies that may be used to meet the objectives. Although not specifically mentioned here, each lesson is developed with the CALL principles from chapter 1 in mind.

► Content Area: Science

Objectives

Content:

Identify simple machines, understand and apply the equation *force* x *distance* = *work;* understand the relationship of force and distance to work; set up an experiment and observe and chart the mechanical advantage gained from using simple machines. (Some of the objectives are taken from the teacher's guide for

Science Court: Work and Simple Machines, Version 1.0.3)

Language:

Content Obligatory: Define and use with increasing accuracy these words: *work, force/effort force, mechanical advantage, simple machine.* Use present tense to describe events that happen regularly. Predict, summarize, listen for facts, exemplify.

Content Compatible: Participate comfortably in discussion, use appropriate turn-taking, ask questions, and disagree politely.

Standards: Next Generation Science Standards (http://www.nextgenscience.org/)

Identify and test causal relationships and use these relationships to explain change. They understand events that occur together with regularity might or might not signify a cause and effect relationship.

Sample Activity

During this lesson, the learners participate in multimedia tasks presented in the *Science Court: Work and Simple Machines* software (Version 1.0.3) and accompanying external documents. The software presents cartoon video footage of a four-part trial in which scientific knowledge determines the outcomes.

Students work in cooperative groups to collect data, answer questions, make predictions, and demonstrate understanding of the concepts presented.

► **Content Area: Mathematics**

Objectives

Content:

Choose appropriate arithmetic operations, compute

answers, communicate about math, perform multi-step problems with multiple operations, estimate, and present mathematical ideas orally.

Language:

Content Obligatory: Define and use with increasing accuracy the following vocabulary: *number, step, unit, multiply, divide, add, subtract, quantity.* Use past tense to describe orally and in writing mathematical processes (e.g., I took 10 away from *b* and divided by *a*). Understand and follow the steps in the problem-solving process. Watch and listen for essential information, take accurate notes, and explain mathematical answers orally and in writing without using numbers.

Content Compatible: Use appropriate group processes, demonstrate accurate subject and verb agreement (e.g., She tooks, no she *took*, the money to the bank), demonstrate accurate number agreement, express reasons for choices, and construct simple sentences.

Standards: Common Core Standards (http://www.corestandards.org/Math/Content/OA/)

CCSS.MATH.CONTENT.4.OA.A.3: Solve multi-step word problems posed with whole numbers and having whole-number answers using the four operations, including problems in which remainders must be interpreted. Represent these problems using equations with a letter standing for the unknown quantity. Assess the reasonableness of answers using mental computation and estimation strategies including rounding.

Sample Activity

As part of this lesson, learners complete tasks presented in the software package Fizz and *Martina's Math Adventure:*

Project Sphinx (2002; Version 3.3). Much like with the *Science Court* software, Math Adventure presents students with a set of multimedia scenarios during which they must note and use mathematical data to help their team solve the characters' problems.

Content Areas: Geography, Social Studies, Mathematics

Objectives

Content:

Use trial and error to develop a balanced town ecology; research facts related to decisions; track, record, and report on processes and outcomes; and explain outcomes in terms of geography, culture, quantity, and so on.

Language:

Content Obligatory: Define and use with increasing accuracy the following vocabulary: *town, city, goods and services, balance, development, costs, pollution, quantity, description, data, pattern, ecology, housing, resident, labor.* Express and support opinions. Indicate agreement and disagreement.

Content Compatible: Use descriptive words (e.g., *big, small, extra, difficult*) appropriately, use past tense to describe group processes (e.g., We agreed to add the school), and make suggestions.

Standards: Next Generation Science Standards (https://www.nextgenscience.org/); Common Core State Standards for Mathematics (http://www.corestandards.org); National Geography Standards (https://www.nationalgeographic.org/standards/national-geography-standards/)

Generate and compare multiple possible solutions to a problem based on how well each is likely to meet the criteria and constraints of the problem; investigate chance processes and develop, use, and evaluate probability models; Understand how human actions modify the physical environment; understand how physical systems affect human systems; understand the changes that occur in the meaning, use, distribution, and importance of resources.

Sample Activity

SimTown is a virtually text-free simulation that allows users to build a town from the ground up, succeeding or failing based on the balance that they achieve among all the important components. In cooperative groups, learners make decisions about what to add to the town, why to add it, and where it should be placed. Group members must research successes and failures in other forums and explain the outcomes.

► **Content Area: Music**

Objectives

Content:

Listen to and choose music appropriate to a chosen culture, explain the music chosen, use authentic personal materials from the target culture to support ideas or issues, research ideas and issues, choose key concepts related to music, and summarize and present in a multimedia project.

Language:

Content Obligatory: List vocabulary relevant to topic, use present tense to describe everyday events, take notes from authentic sources, and use comprehensible pronunciation during presentation.

Content Compatible: Use pronouns appropriately (e.g., instruments as *it* or *they* rather than *he* or *she*), use article/noun agreement accurately (e.g., *a* flute, *some* instruments), and use and explain phrases and idioms appropriate to the target culture.

Standards: National Association for Music Education (2014; https://nafme.org/)

Demonstrate and explain how intent is conveyed through interpretive decisions and expressive qualities

Demonstrate and explain how selected music connects to and is influenced by specific interests, experiences, purposes, or contexts.

Sample Activity

Using any of the many multimedia tools available, learners create a presentation that presents an overview of the music of a chosen culture, preferably one with which they are familiar or have had experience.

► Tools for Content-Based Technology

Many websites and apps emphasize content learning in effective and authentic ways, from the global *Cable News Network* (http:// www.cnn.com/) and the *U.S. National Aeronautics and Space Administration* (http://www.nasa.gov) to the Discovery Channel (http://www.discovery.com) and *Sammy's Science House* (Version 1.4; free from https://classicreload.com/dosx-sammys-science-house.html), and many more can support content-based learning, such as *PowerPoint*, *Hyperstudio*, and other multimedia development packages.

However, many language educators ask whether

commercial software and websites intended for native-speaking audiences can or should be used in language classrooms. The answer is that teachers should use such software and websites only when they have carefully planned how to use them so that they meet the CALL principles (chapter 1). Meeting those conditions means, in part, that teachers have provided any necessary organizers, prompts, or adaptations to make the language and content accessible to the students; that the content and language are relevant and authentic; and that the objectives for the language and content are clear. If these conditions are met, the technology's multimedia-multimodal-nonlinear presentation of information will probably result in more gains than losses.

▸ Conclusion

Content cannot be learned without language, and even language can serve as content for lessons. In addition, learners usually demonstrate understanding of content by using language, and they demonstrate language learning by discussing or writing about content. In other words, the relationship between language and content is both receptive and active. Because the two are intertwined, CALL teachers need to be mindful of the difficulties that learners can face in meeting both language and content objectives, particularly if these objectives are not made explicit. Teaching in a culturally responsive manner, including making sure that software and websites do not present unexplored biases, can help learners achieve in both language and content areas.

► Teachers' Voices

I like PBS and National Geographic for the multimedia presentation they offer, lesson plans recommended, connection to television shows, and the variety of themes to represent.

I always provide students with books, encyclopedias, atlases, magazines to conduct research as well as websites.... Some of us still prefer written material we can touch, quickly refer back to. I find that when I read longer materials on the computer that I tend to click on links and eventually lose my original place.

I really enjoyed this website and wanted to emphasize it to all of you. The website is www.nationalgeographic.com; go into the NG Kids [section]. I found some exciting experiments that our students could do at home with materials they would all have access to. Also they can be performed in class if you choose. This site has a lot for all ages. The graphics are wonderful and the feature stories are very engaging. There are contests, jokes, and many links. I hope you find it as rewarding for our ELLs (and all other students) as I did.

I have found that multimedia authoring software, for me, is time consuming and not always the best use of my time. . . . Granted that authoring software is more flexible; I just do not know if the time investment is always worth it. My students have used PowerPoint, Excel spreadsheet for graphs [and] data; we have a class scanner, a digital camera, [color] printer.

Students use the technology for their research projects. I always provide specific websites they may use for their

research—otherwise they are all over the place and never find the needed information.

The cover story in April, 2003, NEA Today is about computers and technology. You can access the article at http://www.nea.org/neatoday /0304/cover.html. The things they are doing in regular classrooms is awesome —animate long division problems, diagram the parts of a cell, complete a spelling quiz their teacher "beams" to them . . . WOW.

Chapter8
Assessment

► Focus

In this chapter you will

- reflect on the uses of assessment in CALL classrooms
- examine guidelines and techniques for authentic assessment
- explore other issues of assessment

As you read the anecdote below, reflect on the guidelines for assessment that the teacher is following.

English language learners in Ms. Hagerty's seventh- and eighth-grade class are working on the design of historical books that they will then produce using *Wixie* (see chapter 6). Student teams have each chosen a figure from U.S. history, which they have downloaded from *US History Images* (http://ushistoryimages.com/), to research and about whom they will construct a first-person narrative. The goal is to distill the most useful and important facts about the figure's life.

Each book will be a minimum of five pages long and will include text, graphics, and narration. Each project must use as resources at least three books, two websites (with justification for accuracy of the materials), and one other resource. After deciding which tasks the activity will involve, team members divide the tasks among themselves.

As team members work individually or together to complete their tasks, Ms. Hagerty walks around the room, observing, asking questions, and providing feedback when necessary. She notices that communication for one team has broken down, and she facilitates a discussion that helps the members get back on track. One student searching for information on the web about her team's character seems to be stymied by the number of hits she has received in her electronic search, so the teacher helps the student reflect on how she might solve this problem. At the end of the class period, Ms. Hagerty asks students to comment on any problems that they had, how they progressed during the period, and what their plan is for completing the project. She

also asks them to write several sentences about what they have learned about the figure they are investigating.

►Overview of Assessment in Language Learning

Assessment is one of the most important aspects of language teaching and learning. Assessment has two main purposes: to make summative evaluations and to provide instructional feedback to help learners progress. Both summative and formative assessments can be formal (standardized) or informal (classroom-based). Informally, assessment provides feedback from peers and others; formally, it provides information against a standard about how the student is progressing in specific areas. Depending on the stakes, everyone can be involved in assessment—peers, teacher, self, administrators, and external constituents; however, teachers, as immediate catalysts of the learning process, should be particularly involved and well-informed about assessment practices. *TTS-LT* (Healey et al., 2011) standards for Goal 3 and the *ISTE* standards (ISTE, 2018, see standard 7 for educators) both consider teachers' access to and understanding of different assessment tools and practices as important competencies to develop.

Assessment supports CALL principles if it is interactive, formative, and authentic. Although standardized testing has become increasingly more intrusive for language teachers, much has been written and continues to be written about this topic; therefore, in this chapter we address classroom-based assessments.

Both language educators and educational researchers agree that assessment practices need to be authentic (Frey,

Schmitt, & Allen, 2012). Although what authenticity translates to has been the subject of many discussions, in this text, its meaning is in line with task engagement principles--learners perceive the assessment measure as connected to their lives and it measures what it says it does. For a measure to be authentic, students should perceive it as related to their lives and/or goals in topic, from, content, process, or any element they consider related. As Gulikers, Bastiaens, and Kirschner (2004) assert, such assessment requires "students to use the same competencies, or combinations of knowledge, skills, and attitudes that they need to apply in the criterion situation in professional life" (p. 69). According to Frey et al. (2012), such assessment is,

- formative and collaborative
- rubric-scored, student-developed, and mastery-based
- contextually realistic, performance-based, and complex (p. 5)

Accordingly, authentic assessment will not only serve as a representative picture of student's competencies, but also as a learning tool.

According to Litchfield and Dempsey (2015), through authentic assessment, students tend to

- apply knowledge rather than memorize the information
- develop more in-depth learning
- develop metacognitive strategies
- develop critical thinking and problem solving skills
- be engaged in the activity through meaningful, interesting,and collaborative activities
- be more confident, satisfied, and active in the learning process.

Of course, among all the features of authentic assessment, contextual realisticness may be the most difficult to implement. It means, for example, that grammar learned in context should not be tested out of context, and that science content knowledge acquired through experimenting should be assessed in the same situation through various techniques. Examples of possible authentic assessment techniques are verbal reporting, observation, retelling, graphic organizers, role-plays, journals, portfolios, and self-assessment. Although these guidelines and examples may make the assessment process in language classrooms seem rather simple, in reality it can be quite complex. This is particularly true for CALL classrooms, where technology use may be an additional factor in the assessment.

How are computers used in assessment in CALL classrooms? Generally they are used in three ways. First, computers are used to perform the actual assessment or to help carry out assessment. For example, some CALL software programs can assess learners based on the number of questions they answer correctly. In addition, computers can help in assessment by allowing learners to post their products to the Web for feedback or send their output electronically to experts to evaluate. Comments from external evaluators can then be counted for part of the project grade. Furthermore, the computer can be used to create rubrics and record observations and reflections. They can also help teachers and students keep a running total of points earned and function as a tool during assessments to help the teacher record, weigh, summarize, and report on student progress. Examples of commonly used assessment

tools include computer-based tests (described later in this chapter), spreadsheets, grading programs, test-making software (e.g., *Schoolhouse Test 4*, ver. 4.1), online applications (e.g., *Online Exam Builder* at https://www.onlineexambuilder.com/), rubric-making software (e.g., *Rubric Maker* at https://rubric-maker.com/), and many iOS- and Android-based applications such as *GoClass* (https://www.goclass.com/), *Nearpod* (http://nearpod.com), and *Playposit* (http://playposit.com). Likewise, all learning management systems such as *Canvas* (https://www.canvaslms.com/), *Blackboard* (http://www.blackboard.com/), and *Moodle* (http://moodle.com) have their own assessment tools.

Second, teachers assess the product and process of the students' work with and through the computer. In other words, computer-enhanced tasks that students complete and the work processes that they use while completing the tasks can be assessed. (Unless the goal of the task is to learn computer skills, such skills should not be a focus of assessment.) The assessment focus is the same as that for language learning tasks that are produced with other tools. However, because CALL projects may have multiple components (sound, visuals, text, graphics, etc.), assessing a multimedia presentation developed in a team may require the teacher to consider and evaluate criteria that would not be used to evaluate a printed essay. (This idea is discussed in more depth in the section on rubrics.)

Third, computers can create a VIE (see chapter 3) in which students or test takers can be assessed more authentically. In other words, the computer can simulate a

real-life situation via high-fidelity graphical 3D technologies where a contextualized response from the test taker can be elicited. For instance, if a student's greeting skills need to be assessed, a VIE can create an immersive context where the test taker meets virtual characters in a simulated real-life venue, such as a restaurant, and needs to react to the situation (see VWs and MMOGs in Chapter 4 and 6). Figure 8.1 presents a simulated 3D image of a skull with which students can interact via a *Leap Motion Controller* (https://www.leapmotion.com/), dissecting it virtually (watch video of this interaction at https://www.youtube.com/watch?v=H_Ik29kpKB4). This interaction can contextualize the assessment task in, for instance, a content-based language classroom where the language is a vehicle for content learning (Crandall & Kaufman, 2002; also see chapter 7).

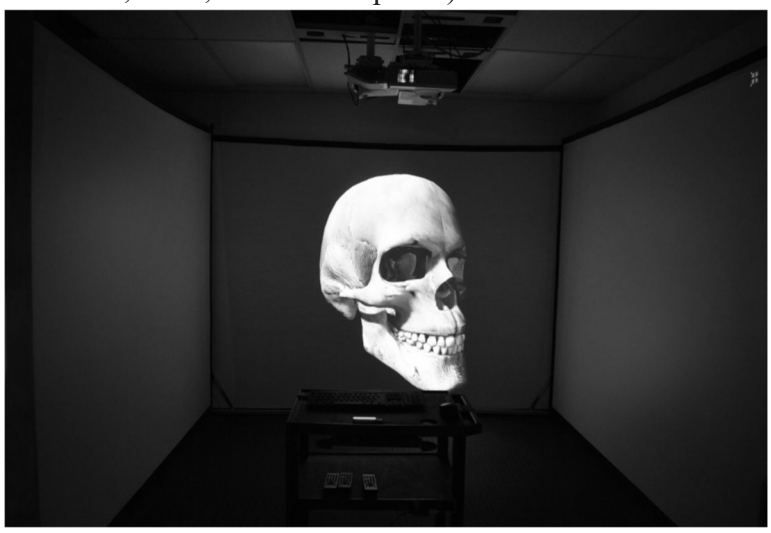


Figure 8.1. Dissecting a skull in VITaL at Washington State University

In this chapter's opening scenario, while students work

on their CALL project, Ms. Hagerty uses many informal assessments to evaluate her language learners' language and content processes. She observes, discusses, and encourages students to reflect on both process and product. Later in the project, she and her learners will develop a rubric for evaluating the project outcomes and an assessment for measuring content and language gains.

► Tips for Developing Assessments

The guidelines for assessing language learning activities in CALL classrooms are no different from those for assessing them in other contexts. For example, like Ms. Hagerty, teachers should involve students in the development of assessments. Involving students not only exposes them to more language and content and provides a deeper understanding about expectations for the activity, but it also helps them to develop metacognitive awareness about assessment and to find it authentic. This book advocates developing such awareness for all aspects of language learning, and it is equally important for assessment.

Although authentic assessments are the ideal, language students are typically involved in plenty of standardized testing, both large scale (region, state, or nationwide) and small scale (classroom or program based). To help them develop metacognitive awareness and practice cognitive strategies for learning and assessment, students can find many computerized assessment applications to a variety of testing services such as *Test of English as a Foreign Language* (https://www.ets.org/toefl, see ETS, 2018) and *Kaplan* (https://www.kaptest.com/all-tests, see Kaplan Inc., 2018). Whether using software or other materials, teachers

need to follow the assessment guidelines to effectively assess student progress and push students to higher achievement.

► Tools for Assessment

Crucial to the assessment process is preparing students to take tests and helping them to participate in their own assessment. Teachers have many resources and tools available, both electronic and paper based, to meet these objectives. One tool is computerized testing, and a useful resource is the rubric.

► Computerized Testing

Computer-based testing (CBT) and computer-adaptive testing (CAT) have become more popular recently in language assessment. CBT presents items to the test taker in a fixed and linear fashion. Many software programs are available to help teachers format CBT tests and to save test content in different formats; these include *Hot Potatoes* (Version 6.3, https://hotpot.uvic.ca/) and *Question Tools* (http://www.questiontools.com/). There is no shortage of tools, applications, and websites to support authentic assessment (see Dyer's (2018) (https://goo.gl/wkexJF for 65 tools).

CAT, on the other hand, presents items to the learners according to their previous answers and response patterns (Embretson & Reise, 2000), individualizing the assessment process. The *Education First* (EF) *Standard English Test* (SET) or, simply put, *EFSET* (https://www.efset.org) is an example of a standardized CAT English language proficiency test. *EFST* comes in two modes--Quick and Certificate. The Quick version is a timed 15-minute, 20-item

measure composed of 10 multiple-choice (MC) reading and 10 MC listening questions, each requiring 7 and a half minutes to complete. On the other hand, the Certificate mode is a timed 50-minute measure composed of 3 reading and 3 listening tasks, each requiring 25 minutes to complete. *EFSET*'s (2014) design process, validity argument, and CAT model suggest that it can be a highly reliable measure of English language proficiency.

Computerized tests are different from paper-based tests (PBT) in several ways. Aside from potential physical advantages with CBT tests in access and security (which may not be universal [Brown, 2016]), some studies have shown that CAT can support students' motivation, engagement, lack of anxiety, and higher gains (Ghaderi, Mogholi, & Soori, 2014). However, the testing contexts and purposes are so diverse that sometimes PBT tests are better options. For instance, research (e.g., Dooey, 2008) shows that high anxiety levels resulting from lack of familiarity with the technology can negatively affect students' performance. Therefore, care should be exercised not to test computer skills in addition to (or exclusive of) language skills (Kirsch, Taylor, Jamieson, & Eignor, 1998); however, it is widely believed that the spread of computer technology in society will diminish this mode effect (Lesson, 2006). Students should therefore practice using computerized testing programs before they are actually tested (Brown, 2016); many test publishers (e.g., Kaplan, Cambridge, Barrons) provide practice tests and tips.

This information will better enable teachers to use computerized tests for language classrooms to meet the goals for authentic assessment and to meet other CALL

principles.

► Using Rubrics for Assessment

As academic standards become more specific and demands for implementation more strident, many language and content educators are designing rubrics, and having their students design rubrics, to evaluate student achievement. Rubrics are commonly defined as "a document that articulates the expectations for an assignment by listing the criteria or what counts, and describing levels of quality from excellent to poor (Reddy & Andrade, 2010, p. 435). Pickett and Dodge (2001, https://www.cs.csustan.edu/~lamie/sed590/CSUS%20Rubrics.htm) note that

rubrics can be created in a variety of forms and levels of complexity; however, they all contain common features which

- focus on measuring a stated objective (performance, behavior, or quality)
- use a range to rate performance
- contain specific performance characteristics arranged in levels indicating the degree to which a standard has been met.

They also add that using rubrics in assessment offers certain advantages. For example, they

- enable more objective and consistent assessment
- force the teacher to clarify his/her criteria in specific terms
- clearly show the students what is expected and how their work will be evaluated
- promote student awareness of the criteria to use in assessing

peer performance
- provide useful feedback regarding the effectiveness of the instruction
- provide benchmarks against which to measure and document progress

Developing good rubrics takes time and practice, but these benefits make them useful and effective assessment tools in CALL classrooms.

► Designing Rubrics for CALL Activities

Many educators find it difficult to design effective rubrics at first, but tools are available to help. For example, rubric generators, such as *Quick Rubric* (https://www.quickrubric.com/) and *Rubric Maker* (https://rubric-maker.com/), format the information quickly and easily. Whether teachers use a rubric generator or type their rubric in a word processing program, the decision steps are the same and teachers (and /or students) must supply the rubric's content. Following these general steps can help teachers to ensure a successful assessment process:

- Review goals and objectives for the project or task.
- Think about what an efficient and effective process would look like and how it meets the goals of the task. Think about what an excellent finished product would look like (and how it would meet the goals). Note what aspects of the goals that the process and the product meet and how they do so.
- Decide on major categories for assessment. Check these against the goals and the finished project description to make sure that you have not left out any important categories.
- Develop subcategories as needed. For example, if one of

your categories is “uses technology appropriately,” you might want to include a subcategory dealing with ethical use.

- Divide your scale appropriately. Thinking of descriptions for more than five numbers takes a great deal of time and effort, so many rubrics have multiple point options for each criteria within a category (e.g., 1–2, 3–4, 5–6) or a simple five-point scale for each category. It is important that students know the relative importance or weight of all of the subcategories.
- Develop precise descriptions for each ranking in your scale. The use of quantifiable elements helps students understand minimums for each level. If you use words like *kind of*, *rarely*, and so on, give examples of how the scoring of each ranking looks in practice.
- Review the rubric according to the guidelines outlined previously. For example, ask yourself, “Is the assessment authentic? Learner centered? Integrated into classroom activity? Does it take place in multiple contexts, assess both process and outcomes, fit the content and method of what is taught, and encourage students to reflect and learn consciously?” If the rubric does not meet these goals, revise or choose another form of assessment.
- Use the rubric.
- Revise the rubric after using it. Teachers can also revise in progress if it becomes clear that the rubric is not fair or that something has been left out. Just be sure the students know what the changes are and why they were made.

A rubric for Ms. Hagerty’s project in the opening scenario could take many different forms. The following is one example of how she might complete each of the steps.

Goals and objectives: Work with teammates effectively, distinguish fact from fiction, learn historical facts, use past tense, practice narrative format, produce error-free text (grammar and spelling), follow instructions, meet standards in social studies and ESL.

Process, product: An effective process has students working together to find answers to questions, dividing work so everyone does an equitable (not necessarily equal) share, completing tasks on time, using technology efficiently, and working in English as much as possible. An excellent product would be creative, well illustrated, free of grammatical errors, factually correct, in narrative format, and complete; have clear audio; and share important historical information about the figure.

Major categories: process, product

Subcategories: *Process:* division of work, completion of tasks, use of technology, use of English, teamwork. *Product:* completeness, format, content, creativity, comprehensibility.

Scale divisions: 1–5 for each subcategory (total of 50 points)

Descriptions: General levels are 1 = does not meet the goal, 2 = somewhat meets the goal, 3 = almost meets the goal, 4 = clearly meets the goal, 5 = exceeds the goal

A finished rubric for the project could look something like Figure 8.2.

	1	2	3	4	5
Process Division of work	Work was not divided equitably. Team members did not agree on divisions, some members did not do any work. Most team members are dissatisfied.	Work was divided somewhat equitably, but several team members did more than others. Some team members are dissatisfied.	Work was divided fairly equitably. Most team members are satisfied.	Work was divided equitably. Team members are satisfied.	Work was divided very equitably, all team members agree and would work this way again.
Completion of tasks	No tasks were completed in a timely manner.	At least 50% of the tasks were done on time.	At least 80% of the tasks were done on time.	All tasks were completed on time.	All tasks were completed in a timely manner, some were done early.
Use of technology	Technology was not used efficiently. Team members wasted time surfing, preparing irrelevant graphics or sound, or just fooling around.	Technology use was only somewhat efficient. Team members sometimes viewed unrelated sites and were off topic.	Technology use was fairly efficient. Team members used their time on the computer fairly wisely.	Technology use was focused and efficient.	Technology was used very efficiently to find answers and obtain and develop content.
Use of English	English was used less than 70% of the time.	English was used 70% of the time.	English was used 80% of the time.	English was used 90% of the time.	English was used nearly 100% of the time.
Teamwork	Teamwork was not efficient. Questions were not answered by the group. Time was wasted.	Some team members were on task. Some questions were answered by the team.	Most team members were on task. Most questions were answered by the team.	All team members were on task. Most questions were answered by team members.	All team members were on task constantly. Questions were answered by the team. Team exhibited exemplary teamwork.
Product Completeness	The product was very incomplete. It was missing either parts of all components or one whole component (5 pages, text, audio, 5 facts, or graphics).	The product was incomplete. It was missing parts of two or more com-ponents.	The product was almost complete but missing part of one component.	The product was complete (5 pages, audio, graphics, 5 facts and text).	The product was complete and at least one extra component was added.

Format	Product was not in narrative format. Illustrations and audio did not contribute to the story. Past tense was not used.	Product was partly in narrative format. Illustrations and audio were only somewhat relevant. Past tense was used in part.	Product was mostly in narrative format. Illustrations and audio were mostly relevant. Past tense was used inconsistently.	Product was in narrative format. Illustrations and audio contributed to the story. Past tense was used consistently.	Product was in correct first person narrative format. Illustrations and audio were vital to the story. Past tense was used correctly throughout.
Comprehen-sibility	5 or more grammar and/ or spelling mistakes and/ or audio or text was unintelligible. The story did not make sense.	4 or more grammar and/ or spelling mistakes and/ or audio or text was only partly intelligible.	3 or more grammar and/ or spelling mistakes and/ or audio or text was mostly intelligible. Most of the story made sense.	1 or more grammar and/ or spelling mistakes and/ or audio or text was intelligible. The story made sense.	No grammar or spelling mistakes. Text and audio were very clear. The story was well-written and easy to understand.
Content	Many factual errors. Many facts were peripheral to the story. Graphics were superfluous. Audio did not add to the story.	Some factual errors. Some facts were peripheral to the story. Much of the graphics and audio were irrelevant.	A few factual errors. One or more facts were peripheral to the story. Some of the graphics and audio were irrelevant.	One factual error. All facts were central to the story. Graphics and audio were relevant.	No factual errors. All facts used were central to the story. Graphics were extremely relevant and audio was necessary to the story.
Creativity	The story was not creative. The use of graphics, text, and sound was not creative.	The story was somewhat creative. Sounds, text, and graphics were not used very creatively.	The story was fairly creative. Sound, text, and graphics were used in fairly creative ways.	The story was creative. Sound, text, and graphics were used in some creative ways.	The story was very creative. Sound, text, and graphics were used creatively.

Figure 8.2. Possible rubric for the project.

Rubrics do not stand alone in classrooms. Ms. Hagerty will review this rubric with her students several times, answering questions about the evaluation (including explaining any terms that they do not understand), updating students on their team's progress according to the rubric as she observes their work, and using the rubric as a framework through which to discuss the project.

► Conclusion

Issues of testing and authentic assessment are often controversial. Clearly, developing and implementing effective assessments is a difficult task. By following guidelines and focusing on goals, however, teachers can make sure that the assessments are useful learning experiences for all involved.

► Teachers' Voices

At my school, when we display student work, a rubric must also be displayed (tied to Washington State K–12 Learning Standards or district curriculum learning goals). Our assistant principal introduced Rubistar—great tool. You may use the rubric as provided or customize your own. What we have found at our school is that those of us using Rubistar are now better at writing/creating our own rubrics and aligning the expectations/assessment with the learning goals.

This can be a part of a reading unit. After students read several books, they can choose a favorite theme or quote from a story and design it in Photoshop. Once the design is

complete, they can print this on t-shirt paper and then iron the design on t-shirts. This is a fun way to evaluate their understanding of some themes or quotes from books.

Educational assessment should follow the principles of integration, autonomy, guiding, critical thinking, and process as well as product. My sixth graders are still mastering the keyboard; therefore, any assessment must take into consideration their lack of keyboard experience. The reading assessment we use at our school requires students to type a one-letter response to comprehension questions. I have noticed some students are taking up precious seconds looking for the correct letter (limited to a, b, c, d). I am thinking of somehow highlighting these letters for them. Would this be considered cheating?

I have used role-plays in the past with my adult ESL students. Usually I used them at the end of a unit on health or jobs. Students role-played going to the emergency room or a doctor's appointment. Also we role-play interviewing for a job and in other units as well. I realize that it is a good idea to use role-playing to assess prior knowledge (at the beginning of a unit) and for identifying any gaps in content knowledge. This type of assessment would be a good indicator for me as the teacher as well as for my students on what knowledge, both concept and vocabulary needs, exists. It would also drive my lessons and make my instruction more intentional and focused on what my students would really benefit from.

The whole concept of learner autonomy in assessment is

news to me. As far as I was concerned, state, administrators, and teachers had the only say in how to assess students. I've now learned that portfolios, peer reviews, and self-assessments can empower and motivate the students. But I do agree that empowering students is not an easy thing to do because learner and teacher must both change their attitudes and the way they interact with each other. Learner autonomy: Wow, what a concept!

Most assessments that are computer created and taken on the computer are fill-in-the-blank, multiple-choice, true-false. I have used the website FunBrain for these types of "tests" and the kids are motivated to do well. FunBrain sends me the results (I do not have to grade) with comments about which questions most students missed. There is a section for essay, but I would have to assess. Essays and other critical thinking assessments are possible on the computer; however, my students' typing skills are limited—and time becomes a factor. Our school uses a reading and math computer-based assessment. Again students have to make a choice from the offered selection. But, the program monitors their reading speed and level—adjusts the difficulty of the reading materials, provides in-depth reports for teachers/ parents about strengths/weaknesses and strategies/suggestions on how to help the student improve. This is just an additional assessment tool and we do not use it as the only tool.

I am not really the expert in electronic portfolios but a friend of mine uses them with her second graders and has great results. She uses electronic portfolios created out of a

program called The Portfolio Assessment Tool Kit. I intend to set this up for my first-grade students next year and have it follow their progress till fourth grade.

I have recently started using a concept-mapping application called Popplet on class iPads. The students are so excited about it. For class activities, I usually divide the class into groups of three and task each group to create a concept map based on what they learn in the class. I think it is a very good tool to both help students' learn the concepts better and assess them on their learning.

Chapter 9
Limitations, Caveats, and Challenges

► Focus

In this chapter you will

- consider how new literacies, differently abled students, limited technology contexts, culture and the law influence student achievement
- consider suggestions for working through the challenges
- reflect on the gains and losses that using technology brings in the classroom

As you read the following scenario, think about influences on student achievement in technology-supported language classrooms.

Ms. Johnston had carefully planned the activity for her lab time with her fifth grade students, making sure that each had a role to play, knew what to do and how to do it, and was aware of the goals of the activity and how to obtain feedback. Although this was the students' first time in the lab, Ms. Johnston expected a successful experience because she had set up the environment so carefully. Once in the lab, Ms. Johnston set the students to work. Although some of the students jumped right in, Dari and Stephen were very confused about the array of buttons, instructions, and windows on their screen and could not figure out how to begin. Jana, who had a visual impairment, could not read the text on the screen, and Alice, who was physically challenged, had a difficult time using the mouse. Anu politely but firmly declined to work on the computer; Ms. Johnston did not understand Anu's obstinacy until she later discovered that Anu's father did not believe that computers were an appropriate part of schooling and did not want her to participate in such activities. Many of the students completed their tasks successfully, but Ms. Johnston was concerned that she had failed to address the needs of all her students, and she determined to work more attentively toward this goal.

► Overview of Factors That Influence Student Achievement

Although Ms. Johnston based her lab activities on principles for effective CALL, she did not consider other

factors in the environment that could have an impact on student outcomes. This is not surprising—although computers can be used as a tool in the same ways that pencil and paper can, they are capable of more than such tools, and both learners and teachers must understand both the advantages and liabilities of using computers. This chapter focuses briefly on five areas for reflection: new literacies, the needs of differently abled students, computer uses in limited technology contexts, the impacts of culture in CALL classrooms, and legal issues of technology use.

► Teaching New Literacies

If you type the word *literacies* into your word processor, the software will probably mark it as incorrect in spelling or grammar; however, literacies is becoming a more common term as educators better understand how literacy goes beyond written text to include other ways to look at language. For example, in 2004 UNESCO stated that

> People acquire and apply literacy for different purposes in different situations, all of which are shaped by culture, history, language, religion and socio-economic conditions. The plural notion of literacy latches upon these different purposes and situations. Rather than seeing literacy as only a generic set of technical skills, it looks at the social dimensions of acquiring and applying literacy. It emphasizes that literacy is not uniform, but is instead culturally and linguistically and even temporally diverse. It is shaped by social as well as educational institutions: the family, community, workplace, religious establishments and the state. Constraints on its acquisition and application lie not simply in the individual, but also in relations and

patterns of communication structured by society. (p. 13). Richardson (2014) adds that new literacies include using any number of computer technologies to "to evaluate and synthesize information from a number of sources in order to try to solve those problems; to communicate with others about problems and potential solutions; and to monitor the solutions we've found and stay up-to-date with new issues as they arise" (n.p.). Miners and Pascopella (2007) note that media literacy (e.g., being able to evaluate online information) and technology literacy (e.g., knowing which technology to use and how it will affect the outcomes), and the skills involved in these literacies, are crucial for both teachers and students to understand.

Although linguistic (generally text) aspects of language are still the most common (and arguably the most important), other literacies addressed in CALL classrooms include historical, information, media, political, scientific, mathematical, visual, and multicultural literacies. Using the Web and other electronic tools successfully for language learning requires teachers and learners to be aware of and have some skills in all of these literacies. New literacies involve messages in modes such as graphics, audio, video, and other modes. To keep the visual aspects of web pages and other electronic texts in perspective, learners must understand how "writing in multimedia co-opts the visual as part of the text" (Murray, 2000, p. 52).

In this chapter's opening scenario, both Dari and Stephen were having trouble decoding the visual elements on their computer screen. They did not know how to "read" visual texts like these and were overwhelmed by the effort. CALL instructors can teach their learners skills in visual and other literacies to help them use electronic technologies

for language and other kinds of learning. There are all kinds of paper and digital resources for Ms. Johnston to find information and teaching tips, such as Lankshear and Knobel (2006), Moss and Lapp (2009), *Reading Rockets* (http://www.readingrockets.org), the website of the New Literacies Research Lab at the University of Connecticut (https://newliteracies.uconn.edu/for-teachers/), and the Center for Media Literacy's "Teaching Media Literacy in the ESL Classroom" page (http://www.medialit.org/reading-room/teaching-media-literacy-esl-classroom).

► Meeting the Needs of Differently Abled Students

Some students face other special challenges in CALL environments. Not only does students' need to develop the necessary language and literacies create barriers to computer use, but other challenges, both physical and cognitive, can also make completing tasks requiring technology use very difficult for some students. Many times these challenges are not apparent until the student becomes involved in the task, as was the case with Jana and Alice in the chapter's opening scenario. To meet the needs of these and other students in CALL classrooms, teachers can apply principles of *universal design* (UD) as they develop tasks and activities.

As noted in *CALL-EJ* (Egbert, 2004), UD is a concept that has only recently been applied to language learning. In education, materials and environments designed with UD principles in mind

- can be used by diverse learners
- provide choices for learners
- are not unnecessarily complex

- work in settings with a range of characteristics
- are easy for learners to navigate and understand
- do not depend on physical abilities to use
- accommodate physical, social, and psychological differences (adapted from Bowe, 2000; Burgstahler, 2002)

Although UD works for all students, Burgstahler (2002) notes that nontraditional students benefit especially from UD: those who have physical or learning disabilities; international students; and other students with varying cultures, abilities, backgrounds, and learning needs. These students benefit because instructional materials and activities designed according to UD principles make the learning goals achievable by individuals with wide differences in their abilities to see, hear, speak, move, read, write, understand English, attend, organize, engage, and remember. Universal design for learning is achieved by means of flexible curricular materials and activities that provide alternatives for students with differing abilities. (Council for Exceptional Children, 1998, p. 2)

Educators can use UD principles in their materials and environments to present information in multiple ways . . . offer multiple ways for students to interact with and respond to curricula and materials (give them choices of pace, how to respond, how to get the information) . . . [and] provide multiple ways for students to find meaning in the material and thus motivate themselves. (Bowe, 2000, p. 4)

More specifically, Strehorn (2001; see also Egbert, 2004) suggests that teachers can

- record classroom lectures and interactions not only for extra listening practice but also to provide review for students whose listening skills need additional support

- have a variety of electronic and non-electronic resources, including dictionaries, available to learners
- have the syllabus and other course documents available in many formats, including paper, electronic, and oversized
- use books on tape, CD, or DVD
- provide students with notes from classes
- read documents out loud
- supply time frames and clear rubrics for assignments
- allow students to choose how to respond to assignments

In ESL classrooms both analog (video/audio) and digital (computer) technologies help teachers to use the principles of CALL and UD by incorporating cueing, organizers, multimodal instruction, and modeling, as well as supporting interaction. Technology can present texts in alternative modes (visually, graphically, auditorily) to meet the learning needs of the students. Whichever tools are used, they should not only assist learners in meeting objectives but also allow all learners to participate as fully as they need or want to in the process.

An important barrier to implementing UD principles in ESL classrooms is the potential conflicting and complex needs of learners from many different cultural backgrounds, with widely varying values and learning styles. Meeting these special demands poses special issues for language teachers who plan to implement principles that give everyone access to instruction. This issue is discussed later in this chapter.

► Computer Use in Limited Technology Contexts

Although many of the newer features of technology (e.g., real-time audio, active graphics, artificial intelligence, many-to-many communication) are useful, they are not

always used to best advantage in classrooms. Reports abound in the literature of activities during which students and technology did not perform as expected. In other words, even advanced technologies can be used poorly for language and content learning. On the other hand, even with limited technology, teachers who base tasks on principles of effective language learning can provide learners with rich experiences.

Many scenarios and activities in this book have presented limited technology contexts. These contexts have limited access to technology, lack of or limited Internet access, dated software that does not match current theory, mandated use of specific technologies, or lack of hardware. It is difficult to find literature that outlines the benefits of limited technology contexts; to some educators, *benefits* and *limited* present an oxymoron. However, educators in limited technology environments find that students can more easily learn how the available technology functions, use learning strategies supported by simple technologies, do not have to deal with unnecessary and distracting audio and graphics components, focus on the learning rather than the technology, and have opportunities to use off-line resources. Despite the fact that some educators might view limited technology as a barrier to effective instruction, limited technology used in a principled way can support the development of effective language learning. (See Egbert, 2010, for information and ideas from a large range of contexts).

Much is written in the literature about barriers to using technology in classrooms; interestingly, the most common barriers are not caused by lack of technology, but by administrative, curricular, and personal needs. Barriers

often include what educators see as the extra time it takes to use technology, the lack of curricular freedom, and large class sizes that make it difficult to give all students equitable access. These three aspects of technology use are discussed briefly below (teacher development in technology is discussed in chapter 10).

Time

The activities described throughout this book should not be seen as additions to an existing curriculum. Teachers can use the CALL principles to rethink the opportunities that they provide for learners. Because using the principles can make learning more effective and more efficient, computer-enhanced language tasks like those described in the examples can replace others that do not provide these opportunities. Teachers do not develop such activities to use exclusively, but rather to use appropriately when they meet classroom goals. Further, there are innumerable lessons and activities available throughout the Web that teachers can use so that they do not need to start from scratch. Websites such as Pinterest (pinterest.com) provide resources at all levels for all classroom contexts.

Standardized Curriculum

The use of technology should not change the goals of the curriculum. Used as a tool, technology can help teachers to meet curriculum goals more effectively and efficiently. Textbook pages and other required curriculum materials can be integrated with the technology in creative ways to give students more opportunities to learn and practice curriculum objectives.

Large Classes

Many of the activities described in this book can be adapted even for large groups of students in one-computer classrooms. For example, during a grammar exercise while the teacher or other person reads sentences from the screen, students in the class can take the role of "A" or "B" to write down odd- or even-numbered sentences. The teacher can randomly call on students to discuss answers or create groups that provide group answers. Learners then pair up to write the story. Such adaptations are especially useful in more teacher-fronted classes. Most CALL experts advice teachers to start small, understand how to use CALL successfully, and then expand as warranted.

► The Impact of Culture

Valid barriers to using technology in classrooms do exist, however, and they range from the contextual (e.g., 200 people with one laptop) to the administrative (e.g., lack of funding, lack of knowledge support), from the legal (e.g., obtaining parental permission for student technology use) to the physical (e.g., migraine headaches resulting from screen blinking). Because teachers can easily observe these barriers, they can more easily acknowledge and deal with them. Other barriers, however, are not so obvious, and they also can impact student achievement in CALL classrooms. The most pervasive of these less obvious barriers is culture.

Culture can have an impact in CALL classrooms in many ways, some of them similar to its impact in non-technology classrooms and others a factor of the tool. For example, student learning styles on and around computers can be different for learners from different backgrounds, and learners may use different strategies for the same task

(e.g., writing) when they use a different tool. In addition, culture may influence how people perceive the use of computers in classrooms. As in this chapter's opening scenario, these influences can be misunderstood.

Culture also has an impact on what students learn. Whose culture and language are portrayed by the electronic tools that learners use, and how the culture and language are portrayed, can influence how much and what learners understand and also how they feel about the work they are doing.

How can teachers be more aware of culture's impact in CALL classrooms? They can do the same kinds of things they would do in any classroom, but in CALL classrooms technology can help. For example, teachers can value learners' first languages, offering them plenty of first language support by using native language websites and software, bilingual electronic storybooks, and translation services such as *BabelFish* (http://www.babelfish.com/) and *Google Translate* (https://translate.google.com/).

Teachers can develop greater cultural sensitivity themselves by studying and communicating with members of other cultures. Software and Internet resources can help them to see cultures through different eyes (both emic and etic views) and to study culture deeply. A starting point for teachers and learners might be the country reports offered by *CultureGrams* (http:// www.culturegrams.com/); another useful resource is Egbert and Ernst-Slavit (2018). In addition, teachers can work with learners to develop new literacies and strategies, as noted previously, that will help them be successful in CALL classrooms.

► Legal Issues

With access to the Internet, ever-expanding resources on the Web, and the profusion of software programs across the world come legal responsibilities for teachers, students, and technology administrators. U.S. law addresses three main areas of concern:

1. student safe use
2. potential for plagiarism
3. fair use

Safe Use

Learners using technology face a variety of risks, particularly on the World Wide Web. The Online Safety Project (2002) notes that

> Statistically, probably the greatest risk is that a child will . . . encounter people in chat areas and newsgroups who are mean or obnoxious. Another "risk" is that a child will spend a lot of wasted time in areas that aren't all that productive.

Exposure to inappropriate material, harassment, lack of privacy, and even legal and financial problems can result from using the Internet. Many schools and language programs already have policies in place to avoid such problems. The first step to avoiding these problems is to make sure that learners using computers are supervised. Classes should establish rules for online safety like those at *SafeKids.Com* (*Rules for Online Safety,* http://www.safekids.com/; see Figure 9.1), and the consequences of not following the rules should be clear. Teachers can adapt the *Kids' Pledge* (see *Family Contract for Online Safety,*

www.SafeKids.com/) for their classes, and they can discuss it with students. (In language classrooms, instructors might want to add visual elements and provide translated versions to make the pledge easier to understand.) Many schools have posted their rules online and online tips are offered on websites such as http://staysafeonline.org, http://www.scholastic.com, and http://elearningindustry.com. These and other resources can keep teachers and students out of trouble.

Plagiarism

In the United States and many other places, the term *plagiarism* means to use something that another person has created or owns and claim it as one's own work. Plagiarism is against the law in the United States, and most schools have policies to deal with it; however, plagiarism is a cultural artifact and learners from cultures where writing and other published works are publicly owned (in other words, anyone may use them and not have to attribute them to the original author) may not easily understand the concept. Therefore, policies for dealing with electronic plagiarism in language classrooms must take into consideration the learner's belief systems.

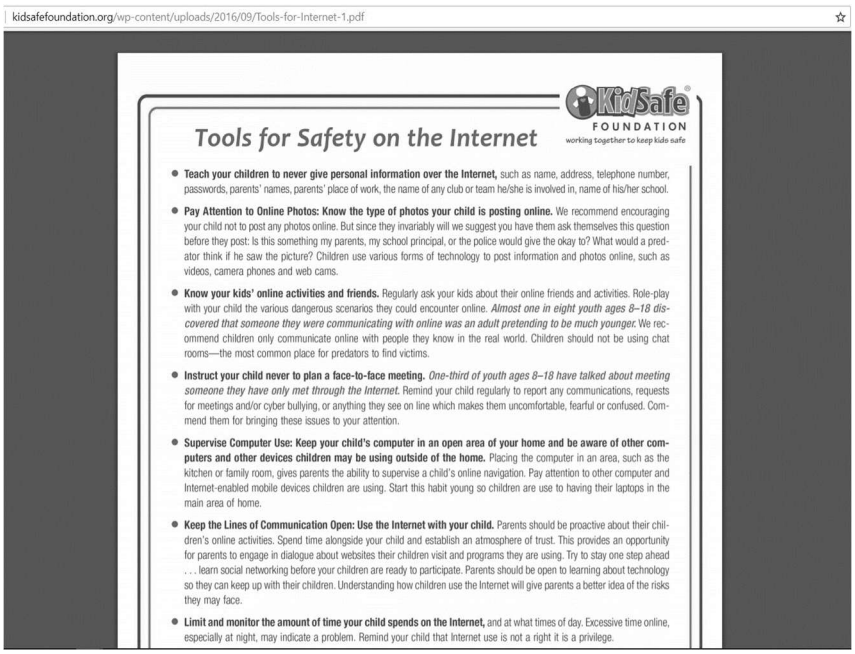


Figure 9.1. Some of the rules from SafeKids.com.

With all the materials on the Web and special sites where learners can go to download pre-written essays, plagiarism in schools seems to be increasing. Harris (2002) provides clear steps to teachers for avoiding plagiarism and addressing the issue in classrooms before it happens. However, if plagiarism does occur, the *Dead Giveaways* slides (http://ciese.org/cyberteacher/v2/slides/hs_week6/tsld018.htm/) suggests how to spot it. If you suspect that all or part of a students' essay may be plagiarized, you can check it using free plagiarism checkers on websites like edubirdie.com, quetext.com, and bibme.org. Students can be taught to use these sites, too.

Fair Use

Copyright law in the United States gives authors or creators ownership of what they create; this includes graphics, text, and video. Violating copyright, or using materials that someone else owns, can be very costly if the owner sues the violator in court. Teachers can use copyrighted materials for their instruction if they follow a set of guidelines called *fair use*. These guidelines outline what can be used, how much, and for how long, but they can be very difficult to understand. A clear explanation is provided by University of Maryland's University College (2004). To be safe, teachers and students should use materials marked *copyright-free* or contact the owner for permission.

Conclusion: Gains and Losses in CALL Classrooms

Using technology for language learning is neither a panacea nor an antidote. There are gains and losses in every choice that teachers make (Burniske & Monke, 2001; Jung, 2003), and while educators think about CALL's benefits for language learners, they also need to think about the opportunities that using technology might take away from them. Twenty years ago Bowers (1998) noted that computers inherently amplify or reduce certain aspects of experience and that software designers determine the thinking patterns used in the software that they develop; not only is this still true, but the ubiquity of social media use has also increased pressure from peers and even strangers. Teachers and students can study these phenomena together and develop ways to evaluate and improve their

experiences using technology.

More specifically, a teacher's choice to use, for example, voice chatting over the Internet to help students practice listening and speaking also means learners participate in an oral activity devoid of the pragmatic examples that they need to develop effective language skills. Although it is not always possible to foresee what incidental gains and losses teachers and students will experience from using technology, teachers should view technology in language teaching and learning with critical vigilance. In fact, if they take a careful look at how they might best prepare language learners for their futures, they might discover that learners do not need to use or know a whole host of technologies but rather need the focus on new literacy skills that will serve them regardless of the task or tool.

► Teachers' Voices

I would like to present two scenarios that occur frequently in my job. Scenario 1: A third-grade boy has horrendous handwriting—it is big and has incorrect size (capitals and small letters look the same), has little or no spacing and spelling is terrible—invented at best. He hates writing stories or anything because it is so labor intensive. His handwriting is starting to interfere with his school work and he has great ideas but refuses to write because it is so challenging. Learning to keyboard is presented as an option but then the question of do we abandon handwriting altogether always comes up. The quandary, do we use the technology or is it a crutch?
Scenario 2: A student is proficiently using an Alphasmart (a word processing device). The student is a terrible speller. For reports he is allowed to use spell check. He

uses it on a regular basis but he is still taking spelling tests to learn to spell. It is [standardized testing] time. The student is allowed to word process on his computer but not spell check because it would allow the student an unfair advantage because no one else can spell check any words. The story has to be scribed into the booklet by someone else. All students can use a dictionary to correct or check spelling. Does the technology give an unfair advantage? Should the technology be an option for all students? Does the technology rob the students of the opportunity to learn to spell?

There is so much information out there that it sometimes becomes a hassle to use the Web. Furthermore, I noticed that there is a lot of outdated info online. I was trying to find information on out of state school districts and found that some sites have not been updated since 1998! So besides checking to see if the site is still up, check the date when it was made. I'd rather find no info than outdated info.

Computer use does take some time, especially when first getting started. I agree that 'baby steps' are needed when first starting out. This can even be in your creating documents on the computer just to get yourself familiar with using it. There are so many things that can be done on the computer that it can be overwhelming if you try to take them all on. It might be good to pick just one program that you could use. Get really familiar with it yourself; then gradually create a lesson that will allow your students to become involved with it too. You can start out teaching a small group of students how to do whatever activity you want them to try out, and let them teach others in the class. Maybe set a goal for yourself of creating documents for

your students to use this year, and then next year creating one or two lessons that will involve your students actually using the computer.

You do want the use on the computer to be effective and efficient, so don't feel that you have to use it all the time. For right now, you might be more efficient and effective in many lessons without it. (But don't let that stop you from learning how to use the computer.) The other thing is you don't want to use the computer to the exclusion of other activities that are better suited for a particular learning objective. . . . For example, if I wanted to take my students on a virtual field trip to a place they would not otherwise be able to go to, then the computer is a good vehicle for that. Where I think computers can be overused is when they are used for illustrating or teaching things that could be better done without them. We learn through our senses, and the more senses we can involve in a student's learning the better. The computer just doesn't involve as many senses as we can when we allow students to smell touch, taste, etc. The other thing is we learn best when we touch with both hands (and utilize both sides of the brain), and the computer leaves some of that out. Also computers can limit creativity. They can also enhance creativity—depending on the activity. So you need to pick activities carefully.

We have used Word, PowerPoint, Publisher, and Excel this year, almost exclusively. The Usborne software (First [Thousand] Words) is pretty cheap, and my kids (past years) have really enjoyed it. I used that this year with a monolingual student I had. He used that as a guide and made a Spanish- English dictionary to 'help me learn my Spanish.' The other software I have used for remediation and for enrichment. I also have had a computer schedule

for kids. They are required to do "x" number of activities on a particular piece of software. I have a time when the rest of the class is doing independent work and the assigned students may use the computers, or they may use them during any free time periods they have. Many kids also like coming in the room early to use the computers. Last year I had an after school time when kids could stay to do homework and use the computers when they were finished. Other than that, I have a math review time when 1/3 of the class is on the computers doing specific math lessons with worksheets (or external documents) to guide them, another group is working with me, and another group is working with a parapro. — I agree, I don't like to just 'plug them in,' but for those free time periods, and periods before school starts, I have let them explore some of the software, and I think it has been OK.

We also have a standard form that goes home at the beginning of the year. If students don't bring it back then they can't use the Internet. The permission form also serves as an agreement to use technology appropriately. I haven't had any parents not allow their child to use the Internet at school. Our district also has many sites blocked. Sometimes sites that shouldn't be blocked are, which is a bit frustrating, but MUCH BETTER than the alternative of having nothing blocked. Even when we think we're being safe something will show up, students will giggle, and I'll rush over to find an exposed belly button. OH MY :-). Anymore you can't go online without having something questionable pop-up. We just have to educate our students about what is acceptable and appropriate and help them become mature and responsible individuals.

There are a lot of potential barriers when it comes to using

and having computers in the classroom setting. I think that by starting with those barriers that can be changed is a good beginning point. For example, we can't change that all of our students don't have equal opportunities and experience with computers before they come to us, but we can change our current level of knowledge and training in computer skills, etc. This can also be done relatively inexpensively. Most of us know quite a few computer savvy people who would be willing to meet with us once a week to work on some skills, etc. Also, a lot of it is just taking the time to "mess around" on the computer and become familiar with different software programs. At least for me, once I feel comfortable with something, then I'm more willing to try and search out ways to implement and practice my knowledge and skills. I see quite a few barriers, and yes, they can be frustrating, but I also see ways that some of these can be broken down.

I agree that time is a key factor in computer skills and work. Also not everyone will bring the same level of prior knowledge or skills with them to the classroom. This is especially true in [my school district], where many students come from low-income families. As teachers, what can we do to ensure that everyone has "equal access" to computers? We can't necessarily change the home environment or situation, but we can make accommodations at school or within the curriculum. It is important to ensure that all students get their turn at the computer. Timers, assigned roles or tasks can help with this. Also, for those students who naturally need more exposure, giving free-time during lunch to work on the computer or maybe before or after school can be one way to help "boost" those students. I know quite a few schools are beginning to have computer labs that are open before

and after school, and also during lunch for students to stay and work on their assignments, etc. I think that is a great idea.

I have taken my adult ESL students to the public library in the past to show them the free computers available to them. Once I have taught them how to use the Internet in my classroom, I show them how to access it using the public library computers. They know how to access it when the college is not in session or when they are not able to attend classes anymore. Hopefully they will feel comfortable accessing the many resources I have shown them on the Web, like Mapquest and others...

Chapter 10
Teacher Development

► **Focus**

In this chapter you will

- discover professional development opportunities in CALL
- learn about resources and tools for teachers in CALL classrooms
- reflect on the importance of teacher inquiry to CALL practice

Read the following scenario and think about the barriers that Ms. Plenner faced in implementing a CALL activity.

Ms. Plenner's supervisor was pushing her to use the school's new computer cart with 24 laptops. He assigned her a time slot for in the middle of the week and strongly recommended that she have her students use some of the ESL software that the school had recently purchased. Ms. Plenner was not familiar with any of the software packages and had little experience with the Internet other than using a basic e-mail program. Her curriculum, already packed, did not include ideas for using technology, and she had not had any training in using technology during her teacher certification classes. She did not have time before the middle of the week to investigate the laptops or the software or even to talk to her colleagues about using technology with second language students.

Ms. Plenner's students, most of whom did not have other access to laptop computer in the economically poor neighborhood in which they lived (although some students had smartphones), were excited (and nervous) about using computers in class and expressed their hope that their language learning would increase as a result. Ms. Plenner decided to give her students each a laptop and let them choose what they wanted to do, hoping that they would catch on to the software fairly quickly because they were highly motivated.

The class time in the computer lab was a disaster. Ms. Plenner did not know that each student would need a password to log on. She expected that there would be some kind of tech help or instructions, but there was not. After she had spent time getting the password from the principal

and helping students access the computers, the students did not know which program to choose. Ms. Plenner picked one from the desktop that helped students practice grammar and asked everyone to do unit one. Two students said that grammar drills were not useful for them and that they wanted to talk to native English speakers online. After several other students seemed confused about how to answer some of the questions in the grammar unit because it used idiomatic language and contexts that they did not understand, Ms. Plenner told the students to turn off the laptops and put them back on the cart, promising that she would figure out how to use the computers better for future sessions.

► Overview of CALL Professional Development Opportunities

Pressure from the school administration to use technology contributed to Ms. Plenner's problems using CALL. Because she was not given a chance to learn about the technology and its uses beforehand, she was not prepared to use the laptops, she did not consider using the computers as tools to help meet her goals, and she did not set up tasks based in CALL principles. This scenario is an exaggeration, but many teachers meet at least some of the same barriers to effective use of CALL: lack of time, training, freely accessible resources, and incentive. These barriers are often difficult to overcome, but many resources and tools exist to help teachers and administrators understand these barriers and to surmount them. This chapter outlines ways for teachers to get started in creating plans for professional development in CALL and to begin to develop strategies for CALL that fit the needs of their

classrooms and contexts.

► Getting Started: Planning for Professional Development

Ms. Plenner realizes that the her students' success is closely linked to her knowledge and practice as a teacher (Diaz-Maggioli, 2003) and that she needs to acquire the knowledge and skills necessary to use the technology on the laptop cart effectively; in other words, Ms. Plenner needs to engage in professional development (PD) on the use of technology in language teaching and learning. As a relatively new teacher, however, Ms. Plenner is not sure where to start; the area of CALL seems overwhelmingly large and new to her, and she feels that she must learn as much as she can as quickly as possible.

Diaz-Maggioli (2003) notes that the purpose of professional development is "to promote effective teaching that results in learning gains for all students" (p. 2). Many print and electronic resources are dedicated to this goal. For example, Rogers (2018) defines CALL and provides teachers with a set of guidelines for choosing CALL tasks; the British Council (britishcouncil.org) has continuing professional development in CALL that includes videos, downloadable resources, and ideas for further reading; YouTube has a variety of videos for teachers; Larry Ferlazzo's website (http://larryferlazzo.edublogs.org/) compiles and sorts all kinds of CALL teacher resources.

One place to start might be the rubric included in the *TESOL Technology Standards* (Healey, 2011). This survey helps teachers to review their understandings of the characteristics of engaged language learning and technology use and to reflect on how they are prepared to

engage students in language learning with technology. After completing the rubric, teachers can choose a standard, goal, or set of indicators as goals for their (and their peers') learning. Once teachers have decided what they want or need to know, they can explore the many resources available to help teachers find out about CALL.

► General Resources for Teacher Development

For teachers with the time and finances, many organizations such as TESOL (http://tesol.org) and CALICO (http://calico.org) offer online courses, standard face-to-face courses, conferences (online and face-to-face), or training sessions. Teachers with less time might take advantage of the many books, articles, and magazines dealing with technology; develop teacher study groups; participate in discussion lists such as TESLCA-L (City University of New York, 2004); or attend short in-service workshops.

Murphey (2003) describes these and other professional development opportunities. Whichever opportunities the teacher chooses, getting the most out of these experiences is important. Chao (2003) suggests that after choosing an activity, teachers should develop a plan to help meet goals effectively. Teachers can ask, "What do I need to know immediately? What would most support my classroom goals? In what specific ways will this activity assist me?" Teaching with technology is a large and complex subject, so the activity should focus clearly on professional development. The resources in this chapter and at the end of this book provide excellent starting points for development in CALL.

► Saving Time by Learning How to Use the Web

An important first step to development using Web-based resources is learning to search the Web efficiently and effectively. There are tutorials and other supports all over the Web, but to get started teachers can go to the *Web Skills for Teachers* page at http://wsuprofessor.wixsite.com/teachertech/module-2 or use the multi-level lessons at https://sites.google.com/site/gwebsearcheducation/lessonplans.

Efficient Web use includes knowing the differences between browsers and how to use advanced search terms. eLearning Industry (https://elearningindustry.com/the-5-best-free-web-search-tools-for-teachers) helps teachers decide on the best browser to use in their context for their goals. WeAreTeachers provides simple and effective guidelines for teaching students about web searching (https://www.weareteachers.com/11-ways-to-teach-savvy-search-skills/).

In learning to search the Web, practice does make better, if not perfect. Of course, learning takes time; until you feel more comfortable conducting Web searches, you can find plenty of books and other materials with lists of great links and other technology resources for teachers. Colleagues are also great sources for useful materials and information on using technology in language classrooms.

The time spent on learning to search well will be rewarded by access to a countless number of resources, mostly free, for use by CALL teachers. Below are listed some sample search terms followed by examples of professional resources that can be found using the *Google*

search engine (http:// www.google.com). The special symbols used (e.g., +, " ") in the search term box help define the exact parameters of the search. Find out more about how to use these characters in one of the overviews mentioned earlier.

"lesson plan" + ESL

Lesson plan sites abound on the Web; one popular resource is http:// www.lessonplanspage.com. Other useful sites include the *Lesson Plans* page at the *Educator's Reference Desk* (formerly AskERIC; www.eduref.org/), which lists lessons by category and has a searchable database, and ESL-specific lessons at http://www.esl-lounge.com/. With the thousands of lessons on the Web, teachers can adapt the wheel rather than reinventing it, thereby saving precious time.

"computer-assisted language learning" journal

Teachers can peruse many e-journals for information on CALL, including *Teaching English with Technology* (International Association of Teachers of English as a Foreign Language, 2004) and the academic research-based *Language Learning & Technology* (http://llt.msu.edu/).

"software reviews" + ESL

This search term results in pages of well-written and accessible reviews of all kinds of language teaching software, including pcmag.com's "Best Free Language-Learning Apps of 2018" (https://www.pcmag.com/roundup/358228/the-best-free-language-learning-apps).

"free ESL materials" + teachers

This general search brings up everything from song lyrics, board game printouts, and lessons to dictionaries and job listings. Sites such as *Wordsurfing* (https://www.englishforums.com/English/Wordsurfing/cjkhj/post.htm) provide examples and interesting ideas for helping learners to acquire new vocabulary.

Learning to search efficiently can provide teachers with many focused resources to help them reach their professional development goals and overcome barriers to using technology.

► Incentives: Tools for Teachers

Learning to search the Web efficiently and being able to use its abundant resources effectively can serve as one incentive for teachers to use technology tools. Release time and extra resources are also excellent (and crucial) incentives to support teacher development in CALL. However, many programs and schools cannot afford to provide these or other inducements. For some teachers, incentive grows as they learn more about computer technologies and how these technologies can (a) support learning in language classrooms, (b) help teachers use time efficiently, and (c) provide ways for teachers to do their jobs more effectively. For example, if a school does not provide a digital forum for connecting with parents, teachers can use free apps such as *BuzzMob, Collaborize Classroom*, and even *GoogleGroups* to contact and connect with parents and notify them of school events. Other software apps allow teachers to send a voice message via the telephone to parents or students; send wake up calls to students who are often tardy; and let parents know about

meetings, homework, and student progress. Apps like *Tocomail* (http://tocomail.com), Gmail (http://gmail.com) and *Kidsemail* (http://kidsemail.com) remove the worry about what students are writing in e-mail messages by letting you access every message that students send and receive (see wikiHow.com for instructions on how to set these up). *Max's Toolbox* (published by http://fablevisionlearning.com) imposes a child-friendly interface on the popular Microsoft Office products, making them simpler to use and far easier to teach. In teacher personal learning networks (PLNs) that use platforms like Edmodo (http://edmodo.com), teachers can meet and work remotely with other teachers, sharing ideas, information, and empathy. The Web even has tools like *Citation Machine* (http://citationmachine.net) and EasyBib (http://easybib.com) which will help teachers format citations for reports and other work, and a Permission Template that teachers and students can use to request permission to use information from Web sources (Warlick, 2003; http://landmark-project.com/permission1.php). Being able to use these time-saving and community-building tools can motivate some teachers to learn and use technology.

Another possible incentive for teachers to learn more about technology and to improve their teaching is easy access to answers. Teachers whose forté is not linguistics, for example, could check the *EnglishClub.com* (http://grammar.englishclub.com/) or another grammar site before class to get a quick brush up on parts of speech, check specific articles, update themselves on English language teaching terminology, or locate answers to grammar questions that they were not able to answer for their learners during class. In addition, Purdue University's

Online Writing Lab (Purdue University, 2018) provides resources and exercises with handouts. American University Library (https://subjectguides.library.american.edu/TESOL) offers another site for linguistically challenged teachers: *TESOL and Applied Linguistics* (American University, 2018). This list contains links to numerous linguistics sites that teachers can tap for information.

Discovering other teaching tools that save time and money and can contribute to learner achievement can help motivate teachers to learn more about effective uses of technology. For example, free presentation tools such as Prezi (http://prezi.com) might be an inducement for teachers. Copyright-free graphics that can be included in presentations to make teacher lessons potentially more accessible can be found on Google by searching Google images and including "copyright-free" in the search term.

There are many ways for teachers to learn about the using technology in language teaching and learning and to use technology during the professional development process. The discovery or exploration phase will require the teacher to invest some time, but the eventual savings by having access to resources, information, models, and a community of learners in similar contexts can make the initial outlay well worth it.

► Critical Inquiry in CALL

Many educators are critical of technology use in education, for good reasons (see, e.g., critique by Cuban, 2001; Himmelsbach, 2017; https://tophat.com/blog/6-pros-cons-technology-classroom; Ronan, 2017, http://www.edudemic.com/technology-pros-cons/). In short, these authors argue that technology has not always

changed education for the better and that billions of dollars have been spent on technology that is often not used well. The criticism that technology will not improve education is valid; however, the effective use of technology could improve opportunities for learners, and that is up to the teachers who design the instruction. This chapter has thus far described teacher professional development activities that can help teachers become more effective users of technology in their teaching and in their own learning. Teacher inquiry is another activity worth examining because it can impact both teacher professional development and effective classroom technology use.

The preface of this book notes that its emphasis is practical, and nothing enhances practice like inquiry. Teachers have their own ways of teaching well, but the literature presents a consensus that reflecting on and investigating one's teaching can improve it. Dana and Silva (2003) note that teacher inquiry can help teachers "untangle some of the complexity of teaching that occurs within their four walls, raise teachers' voices in discussions of educational reform, and ultimately, transform assumptions about the teaching profession itself " (p. 2). Teachers perform informal inquiry daily, but more formal inquiry projects can lead teachers and their inquiry partners to focus more specifically on a question or problem. Generally, the steps of an inquiry project include

- thinking about something in your classroom that you would like to understand better or know more about
- deciding how you might go about answering the question
- gathering the data you need to answer it, and figuring out what answer the data you collected

gives you
- deciding what to do next (what action to take)
- sharing your experience or even trying a new technique or idea

Often, the words *I wonder* generate a useful question to explore (much as they do for student inquiry projects, as described in chapter 6).

In CALL classrooms, an inquiry project plan might look something like this:

- **Question:** I wonder what my English learners talk about when they are around the computer. How on task are they? I'd like to discover how effective/efficient the tasks that we use regularly are in this regard.

  How to answer: I need to get samples of their talk and try to figure out how these relate to the task and other variables. First, I need to read about tasks and see how other people have gathered this kind of information.

  Data gathering: I need to video or audio record conversations (using, for example CamStudio [camstudio.org] or other free screen and audio capture software or listening in on students' Discord [discordapp.com] channels) to get an idea of the interaction and its content (keeping in mind that this might make them speak differently than they otherwise would). Perhaps I can also get them to reflect on how much time they spend on task, what else they do while they are at the computer, and why.

  Analyzing the data: I will compare the record of the conversations to students' perceptions of what is going on and what my goals are. I will

double-check my results with them and perhaps initiate a conversation about what I found.

Follow up: If there does not seem to be a problem, I will continue to construct tasks the way I have been. If there is a problem, I would like to experiment with other ways to construct tasks to help students focus better and stay on task. I will share my results with my teacher PLN group and ask for suggestions.

Teachers can ask and directly investigate an infinite number of important questions in the context of the classroom. Inquiry can be conducted with other teachers, in conjunction with the school administration, and even with students as inquiry partners. Teachers who inquire about their technology practice provide role models for students to question their learning and reflect on how they might improve.

▶Conclusion

This chapter has discussed professional development opportunities in CALL, presented some resources and tools for teachers, and noted the importance of teacher inquiry to CALL practice. Although taking advantage of some of these opportunities can assist Ms. Plenner (in the opening scenario) in meeting her language students' needs more effectively, she still has other barriers to overcome. Most important, she needs to help her supervisor and perhaps others at her school to understand that effective CALL use is not the result of being assigned a time to use the laptop cart and available software; rather, it comes from understanding principles

for language learning, engagement, and technology use, careful planning, and critical inquiry into the process and outcomes of computer-enhanced tasks.

► Teachers' Voices

I have made use of ABC Teach as a teacher resource of free stuff. It covers topics like reading comprehension, shape books, theme units, reports, fun activities. It also appears that there are many more tips for $25 a year. It had a special ESL category. The link is www.abcteach.com.

There is a need of an ongoing staff development for teachers to implement and become more knowledgeable in technology. We all need to know how to research and evaluate the accuracy, relevance, appropriateness, comprehensiveness of electronic information resources to be used by students. Creating a learning community between teachers can really empower individual professional growth.

I love the computer, don't get me wrong, they've got all those fancy buttons and things :-) It's just that there are so many NEW and exciting options for using technology, I just don't know where to begin! I'd be willing to put the time into trying something out if someone, could TELL me which ONE is the best for me to start out with. I know, I know, there isn't one 'best' program or Web site, just like there isn't one 'best' teaching technique. But I need a place to begin that fits in with my learners (fifth grade, many ELL), my curriculum, my philosophy (everyone should have the opportunity to learn in the style/environment most suitable to them), and my time

(limited). Also, I want the program I try out to be interactive, so the students like it, and effective and efficient, so my administration approves it. What do you say? Do you have a recommendation for me?

I have always had the problem of time limitations in the past, and I guess that it is always going to be a problem. However, this year I feel as though I have a better handle on it. I am approaching it a little differently. I just decide what learning or project I want the kids to accomplish. Then [I] figure out what skills they will need to accomplish that, and I give mini-lessons until they have enough background to accomplish the task. The guiding rule in the room is "Ask three, then me." So students always ask three other students how to do things on the computer before they ask me. They end up learning a lot from each other this way. I let them in the room before school starts, and they get their computer skills nailed down during this time, too. We just started a bulletin board with tech tips, and they check that out for cool things to try out on technology tools. While this seems really simple and like a 'no brainer' I just wasn't using my time very well with technology until this year. Technology training for me has made a big difference in my efficiency in using technology with my kids.

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***These references include both the citations from the original version of this text and the update.**

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