Chapter 10
Teaching and Learning with Technology in English and Language Arts

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Learning Outcomes

After reading this chapter and completing the learning activities, you should be able to:

10.1 Identify implications for technology integration of each current issue faced by English and language arts teachers. (ISTE Standards for Educators: 1—Learner; 2—Leader; 3—Citizen; 4—Collaborator)

10.2 Select technology integration strategies that can meet various needs for instruction in English and language arts curricula. (ISTE Standards for Educators: 1—Learner; 2—Leader; 3—Citizen; 4—Collaborator; 5—Designer; 6—Facilitator; 7—Analyst)

Technology Integration in Action: My Side of the Story: Teaching Digital Literacies with a Multimedia Storytelling Project

GRADE LEVELS: 6–8

CONTENT AREA/TOPIC: English/Language arts, literature, creative writing

LENGTH OF TIME: 3 weeks

PHASE 1 Analysis of Learning and Teaching Assets and Needs

Step 1: Analyze problems of practice (POPs)

Mr. Caruso is a seventh grade teacher who teaches literature and composition. He had been reading about the new digital literacies that require skills in using many different media to communicate information in a variety of ways in

addition to print. He thought this might be a good way to confront a perennial problem he has in teaching literature: getting students to connect more with characters in stories by analyzing their traits, motivations, conflicts, points of view, and relationships with others. He felt that character analysis was one of the most powerful and instructive aspects of literature because it teaches students about why they and others act as they do in various situations and how different people can view the same situation in very different ways.

Step 2: Assess technological resources of students, families, teachers, and the school

In the past, Mr. Caruso's students had used and enjoyed journal blogging, but he suspected that they would enjoy more interaction online with others because he heard they often created and shared images and stories with friends online. A few students had their own YouTube accounts where they shared Minecraft videos. Their parents were pretty involved with their children's education by checking the parent portal in the student information system (SIS) that allowed them to see grades and to send messages to teachers. Mr. Caruso had many ideas for using technology because he followed some teachers on Twitter who shared amazing ideas. He had five classroom computers, and his team shared a cart of 20 tablets. Recently, students and teachers in his school had begun to use **G Suite apps**.

Step 3: Identify technological possibilities

The project Mr. Caruso had in mind would ask students to choose a character in a popular story and create a different telling of the story from the point of view of that character. This approach would require his students to analyze the characters more closely and use narration and images to illustrate the new story version they create. He thought students could create the digital stories in Google Slides, but when he tested it, he realized that their version did not support voice narration of slides. Because his school also had access to PowerPoint and the students had learned to use it in the past, he chose that as the storytelling software. He had used blogs in the past, and he thought the stories could be exported as movie files and uploaded onto the school's YouTube channel. Mr. Caruso liked the idea of posting all the stories online and allowing students and the public to critique the work. This would give them an audience for their stories other than himself, which he felt would be very motivating. Mr. Caruso knew that his strategy would hinge on having continuing and frequent online access and the use of these software tools.

PHASE 2 Design of the Integration Framework

Step 4: Decide on learning objectives and assessments

Mr. Caruso identified state and national language arts standards that he wanted to achieve with this project. Because he wanted to make sure students really achieved what he had in mind, he identified the following project outcomes, objectives, and assessments:

Outcome: Create a multimedia presentation that communicates a different perspective on a popular story.

- **Objective:** At least 90% of students will achieve an 80% or better rubric score on a multimedia project designed to tell a popular story from the perspective of one of the characters.
- **Assessment:** Use a rubric to assess the quality of character analysis, narration, and images in the project.

Outcome : Make evaluative comments on peers' YouTube videos that reflect good character analysis.

- **Objective:** At least 90% of students will comment at least five times, including at least one that reflects insights on a character in the original or revised versions of the story.
- **Assessment:** Make a checklist of requirements for comments.

Step 5: Design integration strategies and determine relative advantage

Mr. Caruso designed the following sequence of daily activities for the 3-week project:

Days 1–2: Introduce the unit. The teacher introduces the project by having students read and discuss *The True Story of the Three Little Pigs* by Jon Scieszka, which tells the traditional fairy tale through the wolf's eyes. The teacher leads a discussion on character traits and motivations reflected in the story and how they influence the narrative and plot. Then the teacher asks students to analyze another story that is currently popular with young people of their age. Again, they discuss how one of the characters might tell the same story from a different perspective. Finally, the teacher introduces the project and hands out and discusses the assessment rubric.

Days 3–4: Assign library work and conduct individual meetings. The teacher takes students to the library/media center to review the selected books and stories. The teacher asks the students to select a story for their project

(*Continued*)

focus from those identified, or they can identify one of their own choosing. As the students are ready to identify selections, the teacher meets with them and confirms that their idea will work for the project.

Day 5: The teacher demonstrates a presentation software template and conducts a copyright discussion. Using a template designed for the project, the teacher shows students the interactive and narration features they will use and shows how to save images from the web and insert them into their presentation. The discussion focuses on copyright and **Creative Commons** and how to credit shareable works the students are to use in their projects.

Days 6–10: Individual students work on projects. Students work on classroom computers and tablets to write their alternative stories and create the multimedia storybook. The teacher circulates to each student, answering questions and offering assistance and suggestions.

Days 11–14: Students work on project posting and reflective commentary. As they complete their projects, they export them as movies and upload them to the teacher's classroom YouTube channel as private videos. All students review all story presentations and select at least five on which to post reflective commentary and suggestions. Students can revise their projects after reviewing feedback.

Day 15: The teacher conducts project review and discussion. Final projects are re-uploaded to the school's YouTube channel. The teacher leads a wrap-up discussion on what the students learned about character analysis from the project and how they might look at stories differently in the future. The teacher shares the link to the multimedia stories to the school's twitter account.

Relative Advantage

In thinking about the challenge associated with getting students to connect more with characters in stories by analyzing their traits, motivations, conflicts, points of view, and relationships with others, Mr. Caruso RATified his proposed lesson that involved technology. Figure 10.1 lists the aspects of instruction, student learning, and curriculum that he felt would be impacted by this technology-based lesson. He was satisfied with the amplification and transformation across all aspects. Instead of writing a story, this lesson expanded his curriculum into a new literacies lesson that integrated issues of information literacy, specifically copyright. He felt that there was relative advantage to conduct the lesson as planned.

Step 6: Prepare instructional environment and implement lesson

Mr. Caruso performed the following tasks to prepare for the project:

- **Select stories for student review**—He reviewed a variety of stories that students might like to use for their project and asked the librarian to make these books available on the days students needed them.
- **Schedule library**—Mr. Caruso scheduled the library for a 2-day period and asked the library/media center director to be available to assist his students.
- **Computer preparation**—The teacher arranged for a set of tablets to be on hand for the duration of the project and made sure that each tablet and the classroom computer had ready access to Microsoft PowerPoint for building the multimedia story.
- **Prepare assessments**—Mr. Caruso created a rubric for grading the assignments and a checklist for reviewing YouTube reflective commentary.

Figure 10.1 Mr. Caruso's RATified Lesson

	Instruction	Learning	Curriculum
Replacement Technology is a different means to same end.			
Amplification Technology increases or intensifies efficiency, productivity, access, capabilities, etc., but the tasks stay fundamentally the same.		• YouTube increases parent and community participation and awareness of student work • PowerPoint facilitates easy multimodal storytelling creation	
Transformation Technology redefines, restructures, reorganizes, changes, and creates novel solutions.	• Situates instruction about information literacy (copyright) in authentic student activity with consequences	• Students receive feedback from authentic audiences outside the school via YouTube • Students engage in peer reflection and revision • Students create multimodal stories	• Engages students in new literacies – creating multimodal stories • Includes copyright topics

(Continued)

PHASE 3 Post-Instruction Analysis and Revisions

Step 7: Analyze lesson results and impact

As Mr. Caruso reviewed the rubric scores, he realized that he had met his objectives for the project. All but two students achieved a score of 80% or better. Most points were lost on criteria related to image use and copyright. As usual, students were most enthusiastic about the reflective commentary on the projects uploaded to YouTube. Every student had commented on more than the required five projects, and each had posted at least one comment that reflected good insight about character portrayals. He knew he was on the right track with the project.

Step 8: Make revisions based on results

Based on results from the projects, Mr. Caruso knew he would have to spend more time teaching students about effective and legal use of images. Some students realized the impact of their image choices because Mr. Caruso did not publish to the school's YouTube account any final projects that violated copyright. He decided next time to provide more explicit examples of allowable and illegal image use. He had also encountered an unexpected problem when students wanted to record narrations. The noise level in the classroom did not allow good, clear recordings, and he had to allow students to record in other rooms. He planned to provide for this ahead of time the next time he taught this unit. Finally, he decided to look for funding to obtain his own classroom set of tablets so he could carry out this project and ones like it in the future with more frequency.

Step 9: Share lessons, revisions, and outcomes with other peer teachers

Because the students' digital stories were available on YouTube, Mr. Caruso tweeted a link to share the outcomes with the teachers he followed on Twitter and who had inspired him. Many of those teachers re-tweeted his tweet to their followers, and some other language arts teachers contacted him for more information.

SOURCE: Based on a concept from the Hot Chalk Lesson Plans Page lesson, "What Really Did Happen?" at http://www.lessonplanspage.com.

Introduction

This chapter has two major sections. First, it reviews major issues in the field that shape how technology can be integrated. Second, it describes the integration strategies specific to English and the language arts. Within that section, it discusses how teachers can continue to increase their skills in integrating technology in this area. Notice that it also provides a rubric for self-assessment of growth in how well a teacher is able to use technology in this area.

In this chapter, the focus is on the new literacies—the challenges they present and how our technology tools and strategies can help meet them. People used to be considered literate if they could read and comprehend written text and write their name—in cursive. How times have changed! Now information comes to us in many forms—hypertext webpages, images, audio and video—and each has such unique abilities to shape the messages we receive that new forms of literacy are needed to make sure we use each of them wisely and well. Sometimes these new skills are called *media literacy* or *information literacy*, but this chapter refers to them by the all-inclusive term *digital literacy*. In this chapter, you'll learn what makes a literate citizen in today's digital society and how students have gone from passively receiving written information to actively engaging with and creating their own multimodal messages. Finally, you'll see how teachers can use technology to help students achieve the skills they need.

Application Exercise 10.1 Determining Relative Advantage of Mr. Caruso's Digital Storytelling Lesson

Issues and Challenges in English and Language Arts

Reading, writing, speaking, listening, and critically analyzing language are considered fundamental skills for a literate person, and technologies have much to offer teachers as they help their students develop these skills. However, technologies have also brought about dramatic changes in the format and types of communication and activities that literate people must deal with, thus presenting an array of new challenges to ELA teachers. This section discusses the types of issues that these teachers must confront when teaching literacy skills and effectively integrating technology into literacy topics.

Teachers' Changing Responsibilities for the New Literacies

The definition of *literacy* has changed dramatically over the course of its history from a person's ability to sign her or his name, to being familiar with certain canonical texts, to being able to read and write and make meaning from the written word, to being proficient in 21st-century literacies, including multimodal literacies. The English and language arts discipline is guided by a prominent theory, **new literacies**, which describes an ever-shifting definition of literacy. Other terms, such as *21st-century skills, media literacy, multimodal literacy, digital literacy,* and *information literacy,* describe similar intersections of digital technologies, media, and literacy and are prevalent terms used in general education contexts.

Leu, Kinzer, Coiro, Castek, and Henry (2013) explained how the forms and functions of literacy have always been changing and are shaped by current society. Currently, the global economy, the omnipresent Internet in society, and the comingling of literacy and the Internet in policy, such as national and state standards, are shaping the definition of literacy. Leu et al. explain that literacies now are always changing and teachers should anticipate the following:

- A need for critical thinking skills
- The development of new strategic knowledge and social practices
- Shifts in teachers' roles in classrooms

For example, students now need to seek meaning across a range of media, such as text, video, images, sounds, animations, and interactive elements, often presented simultaneously online or in apps. In addition, students need to develop strategies to decipher and learn from global information sources that could introduce new social and cultural knowledge. Hypertextual structures and aesthetic differences in web-based technologies require strategic knowledge for students to optimally seek, critique, and use information. New social practices include shifts in ways students can learn, express, share, and consume information. Students and teachers take on new roles, such as those in a **distributed knowledge network** in which some individuals are more expert than others regarding certain skills/knowledge, but all participants in the classroom use social activities to maximize everyone's learning. Schools are fundamentally being transformed from industrial era models of learning toward more innovative and technology-focused educational approaches that should be scaled up (Voogt, Erstad, Dede, & Mishra, 2013).

DEFINING COMPETENCIES AND FOCUS FOR 21ST-CENTURY LITERACIES The National Council of Teachers of English (NCTE) (2013) also recognizes these rapid changes in literacy and developed a 21st Century Literacies Framework that says a literate person should have many kinds of literacy. Given our global society, NCTE aims for learners to:

- Develop proficiency and fluency with the tools of technology
- Build intentional cross-cultural connections and relationships with others so as to pose and solve problems collaboratively and strengthen independent thought

- Design and share information for global communities to meet a variety of purposes
- Manage, analyze, and synthesize multiple streams of simultaneous information
- Create, critique, analyze, and evaluate multimedia texts
- Attend to the ethical responsibilities required by these complex environments (NCTE, 2013)

In this definition of 21st-century literacies, NCTE introduces six competencies that reflect examples of the new strategic knowledge, social practices, and critical thinking that were described by New Literacies theorists (Leu et al., 2013).

The terms **digital literacy** and **information literacy** are also widely used in general education contexts to describe the skills required in using technologies and information. According to the American Library Association (ALA), **information literacy** requires people to recognize when they need information, to know how to locate and evaluate it, and to be able to use it effectively. Because English and language arts focus on reading and writing, information literacy is inherent in the New Literacies theory and NCTE's 21st-century literacies. Information literacy involves critical thinking, evaluation (judgment), and analysis of online information and content, which are described later in this chapter as a key instructional strategy. This content can be taught in engaging ways, for example, through innovations such as tutorials, games, and awarding of points and badges within an information-literacy focused curriculum (Laubersheimer, Ryan, & Champaign, 2016).

The literacy term used (e.g., digital literacy, new literacies, 21st-century literacy) is not as important as the key understanding that these literacies capture more than the ability to use computer devices and software tools to locate and use information. These literacies require teachers to develop new instructional and learning strategies to assist students in finding, understanding, critiquing, and contributing to multimodal, global digital information using social learning practices.

USING EVER-SHIFTING TECHNOLOGIES TO DEVELOP LITERACY Technologies are created through contemporary social forces within our global society. These ever-shifting technologies challenge teachers to constantly rethink the literacies they teach in order to make their 21st-century students truly literate. For example, technology shifts literacy in the following ways:

- Information now comes to students via multiple channels, such as through email, websites, **e-books, podcasts, blogs, vlogs, microblogs, wikis,** and instant messages.
- Information can be structured and syndicated through **curation** and sharing via mobile-driven curation apps such as Pinterest and Instagram.
- Information can be organized and narrated in visual formats through digital art-based communication such as **digital storytelling**.
- Social media widens reading and writing through the ability to comment, like, re-post, share, and communicate via mobile tools and computers alike.
- Communication becomes multimodal and collaborative through canvases and apps such as Padlet and Flipgrid and with multimedia tools for creation of video or podcast content such as SoundCloud, YouTube, and Vimeo and movies and streaming video.

Young people are reading more online and within digital texts. Research is starting to gauge the impact on comprehension of students reading digital texts within e-books versus print media. For example, studies by Schugar, Smith, and Schugar (2013) and Schugar and Schugar (2014) found that comprehension of K–6 students was significantly less with e-books than with print texts. Barnyak and McNelly (2016) found that students reading e-books who had support from adult readers yielded better comprehension than those without such support. Research by Leu and colleagues (Leu, Forzani, & Kennedy, 2015; Leu, Forzani, Rhoads, et al., 2015) suggests that an achievement gap

exists for online reading with lower income students being less likely to be prepared to read online. These early findings point to the need for instructing students in optimal reading strategies with digital text. Based on findings to date, we cannot assume that reading and literacy activities occur similarly with print and nonprint materials or that students have equal opportunities or access at home to online materials for practice and rehearsal of online reading.

New Instructional Strategies to Address New Needs

Educational policy has begun to recognize the strength of the current societal forces, mainly globalization and the Internet, which are changing how people learn. National standards for English and language arts recognize integration of the Internet and digital technologies into curriculum and instruction. The National Council of Teachers of English (NCTE) and International Reading Association (IRA) Standards for the English and Language Arts (1996/2013; see Figure 10.2) emphasize the importance of students having opportunities and resources to use technology to develop their language skills.

The Common Core State Standards (CCSS) (National Governors Association and Council of Chief State School Officers, 2010b) for English Language Arts & Literacy in History/Social Studies, Science, and Technical Subjects outline standards in reading, writing, speaking, listening, and language. Digital technologies are explicitly mentioned in five of the general, cross-disciplinary Common Core State Standards: College and Career Anchor Standards (see Table 10.1). Drew (2012) argued that the CCSS do not acknowledge sufficiently the changing nature of literacy and how the Internet has become central to literate practices. New literacies require a high level of critical sophistication from our students, and it is only through instruction and experiences with new technologies that they will develop these skills. However, teaching students to use new technologies calls for an array of new instructional strategies that are not prescribed by the NCTE/IRA or CCSS.

NEW STRATEGIES TO FOSTER READING AND WRITING SKILLS Many readers are now doing the majority of their reading online. Serafini (2012) explained how novice readers are challenged by multimodal texts that include a range of text, visual images, links, sounds, and other design features. He encourages teachers to shift from teaching readers to be reader-decoders (of written texts) to be reader–viewers (of multimodal texts). This calls for them to employ four roles as needed: (1) navigator, (2) interpreter, (3) designer, and (4) interrogator. Readers still need decoding skills, but they also need skills to navigate and interpret multimodal texts that are frequently online and do not have linear paths. Readers are also called on to design their own (multi)paths through multimodal texts and actively construct meaning. Finally, readers can develop personal meanings and identify culturally mediated public meanings—all of which can differ for each person. Texts that naturally position readers as reader–viewers of multimodal texts include postmodern picture books. For example, *Black and White* (Macaulay, 1990) is a picture book for children in grades K–3. *Anne Frank: The Anne Frank House Authorized Graphic Biography* (Jacobson & Colón, 2010) is a graphic novel for children in grades 6–8. Children of all grades gravitate to multimodal web-based texts of all sorts.

Likewise, print-centric texts and the dominant mode of communicating ideas though writing in schools are important but no longer sufficient for learners. Alvermann, Hutchins, and McDevitt (2012) described a range of digital literacy practices, including students writing and publishing a fan fiction prequel to *Of Mice and Men*, and said, "Multimodal texts that combine language, imagery, sounds, performance, and the like are what students deserve and expect, coming as they are from a world rich in multimedia" (p. 40). Teachers see the range of digital technology tools available to students as expanding opportunities for self-expression, increasing writing frequency and formats,

Figure 10.2 NCTE/IRA Standards for the English Language Arts

1. Students read a wide range of print and non-print texts to build an understanding of texts, of themselves, and of the cultures of the United States and the world; to acquire new information; to respond to the needs and demands of society and the workplace; and for personal fulfillment. Among these texts are fiction and nonfiction, classic and contemporary works.
2. Students read a wide range of literature from many periods in many genres to build an understanding of the many dimensions (e.g., philosophical, ethical, aesthetic) of human experience.
3. Students apply a wide range of strategies to comprehend, interpret, evaluate, and appreciate texts. They draw on their prior experience, their interactions with other readers and writers, their knowledge of word meaning and of other texts, their word identification strategies, and their understanding of textual features (e.g., sound-letter correspondence, sentence structure, context, graphics).
4. Students adjust their use of spoken, written, and visual language (e.g., conventions, style, vocabulary) to communicate effectively with a variety of audiences and for different purposes.
5. Students employ a wide range of strategies as they write and use different writing process elements appropriately to communicate with different audiences for a variety of purposes.
6. Students apply knowledge of language structure, language conventions (e.g., spelling and punctuation), media techniques, figurative language, and genre to create, critique, and discuss print and non-print texts.
7. Students conduct research on issues and interests by generating ideas and questions, and by posing problems. They gather, evaluate, and synthesize data from a variety of sources (e.g., print and non-print texts, artifacts, people) to communicate their discoveries in ways that suit their purpose and audience.
8. Students use a variety of technological and information resources (e.g., libraries, databases, computer networks, video) to gather and synthesize information and to create and communicate knowledge.
9. Students develop an understanding of and respect for diversity in language use, patterns, and dialects across cultures, ethnic groups, geographic regions, and social roles.
10. Students whose first language is not English make use of their first language to develop competency in the English language arts and to develop understanding of content across the curriculum.
11. Students participate as knowledgeable, reflective, creative, and critical members of a variety of literacy communities.
12. Students use spoken, written, and visual language to accomplish their own purposes (e.g., for learning, enjoyment, persuasion, and the exchange of information).

SOURCE: National Council of Teachers of English (1996/2013). *NCTE/IRA Standards for the English Language Arts*. Retrieved from http://www.ncte.org/standards/ncte-ira. Reprinted with permission.

Table 10.1 Technology-Related Common Core State Standards

Anchor Standards (A.S.)	Applicable to: K–5	6–12	History/Social Studies, Science, and Technical Subjects
Reading: **A.S.** 7. Integrate and evaluate content presented in diverse media and formats, including visually and quantitatively, as well as in words.	✓	✓	✓
Writing: **A.S.** 6. Use technology, including the Internet, to produce and publish writing and collaborate with others.	✓	✓	✓
Writing: **A.S.** 8. Gather relevant information from multiple print and digital sources, assess the credibility and accuracy of each source, and integrate the information while avoiding plagiarism.	✓	✓	✓
Speaking/Listening: **A.S.** 2. Integrate and evaluate information presented in diverse media and formats, including visually, quantitatively, and orally.	✓	✓	
Speaking/Listening: **A.S.** 5. Make strategic use of digital media and visual displays of data to express information and enhance understanding of presentations.	✓	✓	

National Governors Association Center for Best Practices and Council of Chief State School Officers. (2010). *Common Core State Standards for English language arts and literacy in history/social studies, science, and technical subjects*. Washington, DC: Authors.

Video Example 10.1 Using Technology to Teach and Learn Point of View

In this video, the teacher asks her students to take on the perspective of the cat, Dragon, in the book *Mrs. Frisby and the Rats of NIMH* and use Voki software to write and animate a story arguing in first-person point of view that Dragon did not kill Jonathan Frisby. The teacher assists a student getting started, and students pair-share their developing stories.

and broadening the audiences for whom students write, yet Advanced Placement and National Writing Project teachers also highly value formal school-based writing assignments, which they see as essential (Purcell, Buchanan, & Friedrich, 2013).

NEW STRATEGIES FOR INFORMATION LITERACIES Beach (2012) reported that informational/accessibility literacies allow students to access, acquire, and evaluate the quality of online information as well as using, synthesizing, and communicating what they find. Students often rely on simple Google searches (Jonker, 2011), which are inefficient. Increasingly, school librarians are leading sessions in information literacy and database searching that reach beyond Google searching (e.g., Wine, 2016). Library and classroom collaborations support information literacy instruction (Wine, 2016). Teachers must also teach students how to use the most effective **keyword searches** to search educational online databases, such as InfoTrac Junior Edition or EBSCO Host as well as in search engines.

As students find informational sources online, they need explicit instruction in how to think critically and evaluate what they find (Castek, 2012). Rheingold (n.d.) advised students to critically analyze the author, publisher, timeliness, audience, and argument structure of the material as applicable. Rheingold provided grade-appropriate critical questions in each of the areas for analysis. When teachers select and vet the websites that students will use, it is recommended that teachers model or review Rheingold's critical thinking steps regarding how the sites were chosen. Next, students must employ critical thinking skills to determine the accuracy, reliability, and bias of the information sources. Roland Paris (n.d.) suggested that students use the CLEAR model for critical reading (see Figure 10.3). Learning these strategies will require more than a one-time library session. However, they are important activities because research shows that students have difficulty processing information once they have found it online (Salmerón & García, 2011). Also, they can read superficially, be paralyzed by information overload (Carr, 2011), or struggle with website text readability that is considerably above their grade level (Dalton & Smith, 2012).

Figure 10.3 The CLEAR Model

1. **CLAIMS**: What are the main claims or arguments in the text? What is the author's main point?
2. **LOGIC**: How does the author reach these conclusions? What are the steps in the author's reasoning or logic? Is this logic sound?
3. **EVIDENCE**: What evidence does the author present to support the argument(s)? Does the author offer enough evidence? Is this evidence convincing? Can you think of any counter-evidence that would challenge the author's claims?
4. **ASSUMPTIONS**: Does the author rely on hidden assumptions? If so, are these assumptions correct?
5. **ALTERNATIVE ARGUMENTS**: Can you think of alternative arguments that the author has not considered?

SOURCE: Reproduced with permission from the website of Professor Roland Paris, University of Ottawa. http://aix1.uottawa.ca/~rparis/critical.html.

NEW STRATEGIES TO ADDRESS SOCIAL INTERACTION New literacies are much more contingent on social interactions with others than traditional literacies. According to the *NCTE and IRA Standards for the English Language Arts* (National Council of Teachers of English, 1996/2013), teachers should create opportunities for students to teach others, including teachers. Technology offers a natural setting in which students can be positioned as the experts, helping redefine the student–teacher and student–student relationships.

Another reason that new literacies demand a more social environment is that teaching and learning are no longer confined to a traditional classroom context. A classroom in the digital age is a global location in which networked technologies and use of participatory social media for literacy enable us to communicate with people across distance and time. We transmit and receive information in various formats and from many different people. These interactions provide a tremendous cross-cultural benefit to our classrooms that has never existed before. One strategy that uses this new social environment allows students to socially curate and bookmark online sources using apps such as Pinterest and Padlet. These social sites allow selective sharing that supports collaboration. Another strategy is to have students share their work products with the world by publishing them online in blogs, wikis, webpages, and e-books. By sharing their work, students are able to comment on or annotate each other's posted works, thus engaging in a collaboration that makes them part of an ever-growing and changing community of learners. To further writing instruction, students can also communicate virtually with experts and authors via Skype using lesson ideas for Skype in the Classroom (Dwyer, 2016). See the Skype in the Classroom website for further information.

Schools are redesigning classroom spaces into learning commons or flipped classrooms to support more social learning. **Learning commons** are areas in a school that integrate school media centers and English Language Arts (ELA) classrooms around knowledge sharing and can involve parents, student peers, counselors, administrators, and other teachers. **Flipped classrooms** reverse typical practice by assigning individual instruction and lecture stored as downloadable videos or vodcasts and individual practice activities as homework while reserving class time for collaborative creation, sharing, and discussion.

Classrooms' Increasingly Diverse Learners

Schools have more diverse student populations today than ever before. This cultural and linguistic diversity creates classrooms that are richer yet more complex. As we value and celebrate the opportunity to interact with students of different nationalities, races, and ethnicities, English and language arts teachers work with students who are

learning English as a second or third language or who could have learning disabilities; many of these children may be struggling readers and writers. Overall, teachers are teaching more students with a broad range of skills. Because many students need additional instruction in literacy, appropriate use of technology (e.g., audio books and e-books, websites, iPods/iPads, and software) can support their growth. The Adapting for Special Needs feature provides information on how to support students who struggle with reading and writing.

Motivating Students to Read and Write

The more students read, the better developed their language and writing skills become. However, teachers find motivating students to read—either for study or for pleasure—an ongoing challenge. Although youth aged 8–18 actually increased their leisure time reading print books from 21 to 25 minutes per day between 1999–2009, computer use (which included reading online) rose from 27 minutes to 73 minutes per day (Rideout, Foehr, & Roberts, 2010). As students age, they read less; for example, 47% of 6–8 year olds read frequently whereas 17% of teens age 15–17 do so (Scholastic, 2017). Children are increasingly reading on mobile devices. According to Common Sense Media (2013), among U.S. children under 8 years of age, 50% have used mobile apps and 30% of children report reading on mobile devices. Among teens, about 75%

Box 10.1: Adapting for Special Needs

Writing Tools

Students with disabilities and/or who are learning English may struggle in many English and Language Arts classrooms because of the emphasis on reading and writing skills, which are common areas of difficulty for many students. As a result, it is important to consider how assistive technology tools might be used to scaffold and support each student's literacy development. One common approach for supporting diverse learners is to provide assistive tools such as a specialized word processor specially designed with features that support poor writers. These include:

- **Clicker7** (at the Crick software website)—Word processor with point-and-click access to whole words, phrases, and pictures to insert into writing.
- **Co:Writer** (at the Don Johnston website)—Word prediction software that assists a user during word processing by "predicting" and inserting a word the user intends to type. Works with any application in which a student writes (e.g., Google Docs, blogs, email).
- **PixWriter** (at the Attainment Company website)—Program that assists writing by allowing users to select text from pictured buttons.
- **Read&Write** (at the Texthelp website)—Program with a toolbar that integrates with software such as web browsers and word processing, allowing students to access support tools that highlight and read aloud text, proofreading, and defining words.

Another tactic to support writing and spelling skills is changing the writing production task from written drafting to dictation with speech-to-text software. Several tools are available that alter the nature of the text generation process and allow students to move into the revision phase of writing.

- **Dragon NaturallySpeaking** (software and app)—This software can be trained to recognize one's voice.
- **Google Chrome extensions**—These foster speech-to-text functions, such as VoiceNote II – Speech to text.
- **iDictate** (at the iDictate website) and **SpeakWrite** (at the SpeakWrite website)—These are transcription services that accept voice recordings and return a text transcription via email.

Reading Tools

When students struggle to read grade-level content independently and fluently, text-to-speech products may be useful to allow students to listen to the information. They use these tools to play back any given text selection in a spoken voice. Free text-to-speech tools include the following:

- **Natural Reader** (at the NaturalReader website)—Students can copy text into a website window to be read aloud. Paid software products have more features.
- **Snap & Read** (at the Don Johnston website)—This software for Google Chrome reads text aloud, changes words to create lower or higher reading levels, and translates text into hundreds of languages.

—Contributed by Dave Edyburn

own or have access to a smartphone (Lenhart, 2015). Thus, teachers are turning to the interactive and visual qualities of software and websites to increase motivation for reading and writing.

Teachers also find motivating students to express themselves in writing an ongoing challenge. Students especially resist the labor involved in revising research papers and compositions. In addition to word processing, which has been in use for decades, various technology tools and strategies have emerged to spur students' desire to write, to improve the quality of their written products (e.g., email projects, blogs), and to provide authentic publication sources (e.g., fan fiction).

Keyboarding and Cursive Writing

Although many emerging technologies, such as mobile devices and speech-to-text, change the once dominant need for keyboard-based input, classical keyboarding instruction is sometimes offered at schools, predominantly within a computer or technology course. It is important to note that CCSS for ELA (National Governors Association, 2010b) expects students in fourth grade to "demonstrate sufficient command of keyboarding skills to type a minimum of one page in a single setting" (p. 21), and expectations for typed page length increase by one page each for fifth and sixth grade levels.

An issue that is related to questions about keyboarding is whether time spent teaching cursive writing would be better spent on other educational priorities such as keyboarding. Critics of this long-taught skill argue that it is no longer used enough to justify its place in the elementary school curriculum. Some feel that this time would be better spent teaching writing with word processing. Supporters of cursive writing instruction point to its effect on shaping fine motor skills, its use in legal matters, and the need to be able to read historical handwritten documents.

Transitioning to Transformational Learning

The Office of Educational Technology (USDOE) (2016) suggests a focus on transformational learning, including, but not limited to, the following technology levers:

- Blended learning
- Personalized learning
- Project-based learning
- Simulated learning
- Virtual reality and augmented reality
- Technology accessibility
- Assistive technology and Universal Design for Learning
- Technology-enabled environments
- Connected educators

Furthermore, the position statement published by the International Reading Association (2009) indicates students have the right to:

- Teachers who use information and communication technologies (ICTs) skillfully for teaching and learning
- Peers who use ICTs responsibly and who share their knowledge
- A literacy curriculum that offers opportunities for collaboration with peers around the world
- Instruction that embeds critical and culturally sensitive thinking into practice
- Standards and assessments that include new literacies

- Leaders and policymakers who are committed advocates of ICTs for teaching and learning
- Equal access to ICTs (Reprinted with permission of the International Reading Association (currently referred to as the International Literacy Association))

In our ever-shifting global society with changing expectations for literacy, English language arts teachers are continually challenged to revise their instruction to better support transformational learning with technologies. Learning to change is hampered when 81.6% of U.S. literacy educators report a lack of professional development in technology integration (Hutchison & Reinking, 2011). Ultimately, educators do not always integrate technology into teaching even when tools are available (Delgado, Wardlow, McKnight, & O'Malley, 2015).

Check Your Understanding 10.1

Shared Writing 10.1 The Role of Technology in Teaching English and Language Arts

Technology Integration Strategies for English and Language Arts

Thanks in part to strong support for technologies by professional organizations such as the International Literacy Association (ILA) and NCTE, an increasing emphasis on the use of technologies to support literacy instruction has occurred in the last decade. This section focuses on integration strategies that support word fluency and vocabulary development; comprehension and literacy development; writing; and multimedia communication and digital publishing, literature, and continued teacher growth in technology integration. The following sections mention many technologies, and we highlight our Top Ten Technologies for English and Language Arts in Table 10.2.

Strategies to Support Word Fluency and Vocabulary Development

Literacy begins at the word level with word identification as well as fluency and accuracy in decoding, reading, and understanding individual words. Several digital strategies support student growth in these skills, including practice in matching letters and sounds, matching words with meanings, and vocabulary growth.

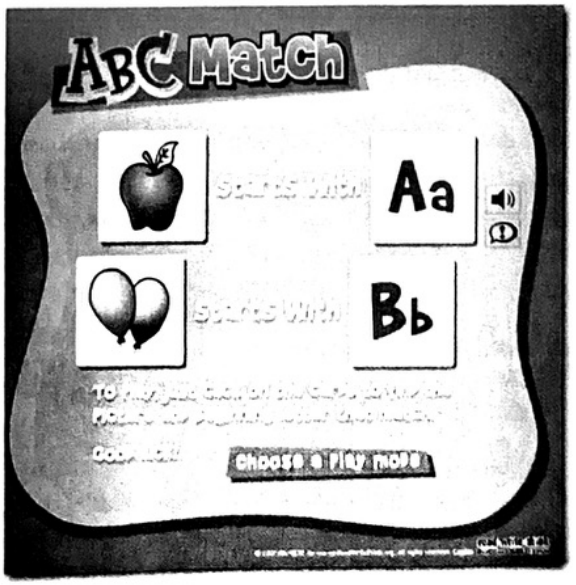
ONLINE PRACTICE IN MATCHING LETTERS AND SOUNDS Phonological, phonemic awareness, and phonics remain foundational skills in learning to read, and many websites provide interactive practice in these important skills. For example, the ReadWriteThink website maintained by the ILA and NCTE offers a number of matching-letters-to-sounds exercises (see Figure 10.4). To make this practice more accessible to children outside of school, apps with this focus are available. For example, Little Stars – Toddler Games offers practice with first words, letter names, and letter sounds. It shows content that learners need to practice and is customizable, including custom recording and adaptive play. The Starfall app and website also are available to foster letter-sound relationship and decoding practice.

Table 10.2 Top Ten Must-Have Technologies for English and Language Arts

Technology	Description
E-reader apps (e.g., Kindle, iBooks, Blue Fire, Marvin, Overdrive)	Students can use these apps to read e-books; some allow borrowing e-books and audiobooks from public or school libraries for free. Others allow reading of books in ePub and PDF formats. Reader apps allow customization of fonts, page colors, and brightness; highlighting, note taking, book marking, sharing quotes via social networking apps, searching; voice-over; dictionary.
Piktochart	Students and educators can design simple or complex multimodal posters, infographics, and flyers that contain images, text, and/or multimedia using templates that are ready-made or customized from scratch. Multimedia include videos, maps, and charts. Piktochart is versatile with a variety of text structures, including both narrative and nonfiction information. It is exportable into a variety of formats (e.g., PDF, JPEG, and PNG or web link).
International Children's Digital Library Free Books for Children	This app provides the largest collection of free children's books. The books in multiple languages and summaries in English are sourced from more than 60 countries. It holds thousands of books and is completely free. It has no advertising. The ICDL Foundation "aspires to have every culture and language represented so that every child can know and appreciate the riches of children's literature from the world community." Available on the International Children's Digital Library Free Books for Children website or iPad app from iTunes.
Digital Public Library of America (DPLA)	Library collections, even digitized materials, often exist as silos and are unfortunately undiscovered and definitely underused. The DPLA aims to change that by bringing together collections "in a single platform and portal, providing open and coherent access to our society's digitized cultural heritage." Access to these materials, many of them primary sources, are available on the website through a search engine, in exhibitions, by place, and by date. In addition, DPLA is a "platform," which means that its application programming interface (API) and open data can be used by developers or others to create new digital interfaces for learning. Check its apps list to see the newest ways that DPLA open materials are being harnessed into new technologies. Available on the DPLA website and various apps.
iBook Author	This software allows teachers and students to create and publish books for iPad and Mac. Multimedia elements—such as photo galleries, videos, interactive diagrams, 3D objects, charts, and math expressions—augment the textual elements of the book that you create. Apple-designed templates are available for entry-level book making. Voice-over and other accessibility features are available to make books available to readers with disabilities. You can then publish your book to iBooks for purchase or free download.
Evernote	This app allows users to easily type written notes, save files, take photos, record audio, save web pages (including text, images, and links). You can organize all your saved materials and share your notes or collaborate with others. Your materials synchronize onto all your devices for seamless access and use.
VoiceThread	VoiceThread is a cloud-based or mobile multimedia creation tool that fosters online threaded dialogue and student voice using text, audio, and/or video. Students create their own VoiceThread to communicate reader response or commentary related to a text. VoiceThreads can also be "stand alone" and function as videos or podcasts.
Vocabulary Spelling City	This is an interactive, game-based website and mobile app providing students with different games focused on word study practice, helping spelling and vocabulary development.
Microsoft Photo Story	This user-friendly photo presentation tool can be used for digital storytelling and multimodal forms of writing. Students plan and organize their story, locate and arrange images, add text to the story, and enhance it with multimedia such as audio and music, thereby creating a multimodal text.
Google Docs	Part of G Suite, this cloud-based word processor can be used for writing workshop (drafting, editing, revising, and peer review). Students can write collaboratively in small groups in a variety of genres. Additional extensions and tools can be used in conjunction with Google Docs such as voice typing (speech-to-text) for students who face challenges in writing and/or keyboarding.

Figure 10.4 Sample ReadWriteThink.org Letter-Sound Exercise

SOURCE: ReadWriteThink.org is a nonprofit website maintained by the International Reading Association and the National Council of Teacher and English with support from the Verizon Foundation. It publishes free lesson plans, interactive student materials, web resources, and standards for classroom teachers of reading and the English language arts. Retrieved from www.readwritethink.org/files/resources/interacitves/abcmatch/. Reprinted with permission.



ONLINE PRACTICE IN MATCHING WORDS WITH MEANINGS As Glenberg, Goldberg, and Zhu (2011) remind us, many children, especially those learning English as a second or third language, can learn to sound out words, but without visual prompts, they might not connect these words to images from their own experience. Websites such as BrainPOP (see Figure 10.5) are among those that offer exercises to give students practice in linking words and images so that emerging readers and new English language learners can begin to make those associations. PBS KIDS offers a range of online games and apps that target a range of literacy activities.

ONLINE TOOLS TO ENGAGE STUDENTS IN VOCABULARY LEARNING A growing number of innovative and fun sites for encouraging vocabulary growth are available. For early literacy, Endless Alphabet and Endless Reader help build vocabulary and "sight words" through interactive puzzle games, talking letters, and definitional animations. Dalton and Grisham (2011) also offered some specific examples of these, such as Wordle, Wordsift, and Visual Thesaurus. One strategy for encouraging vocabulary growth calls for students to use Wordle to create a "word cloud" based on the frequency of words used in a text (see Figure 10.6). These technologies serve to engage students with words in motivating ways.

Figure 10.5 BrainPOP Practice in Matching Words and Images

SOURCE: http://www.brainpop.com. Copyright 1999–2011 by BrainPOP. All rights reserved. Reprinted by permission.

Figure 10.6 Example Word Cloud Created with Wordle

SOURCE: Word cloud created from Sonnet #43 from *Sonnets from the Portuguese* by Elizabeth Barrett Browning. Wordle created at http://www.wordle.net.

Strategies to Support Reading Comprehension and Literacy Development

Technologies offer a variety of ways to support both traditional reading comprehension and emerging literacies. Those described in this section include encouraging engaged reading with digital text, collaborative reading, and supporting reading with portable assistive devices.

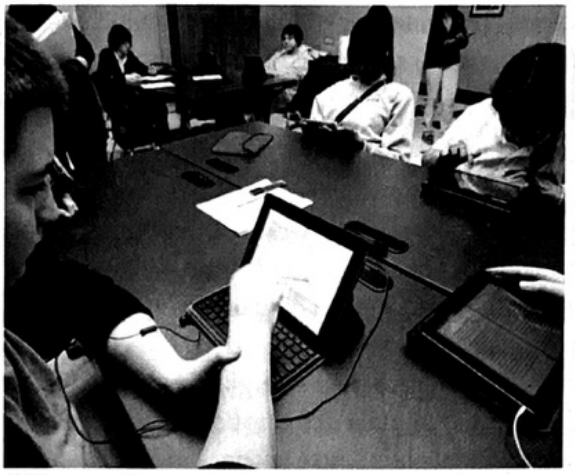
DIGITAL TEXT TO ENCOURAGE ENGAGED READING E-books and interactive stories serve to engage readers by allowing them to interact with digital versions of text and notate them as they read. In their review of research on using computer-assisted methods to support learning for struggling readers, Stetter and Hughes (2010) found that students profit most from supported use of text in digital tools such as e-books. They found that e-books and interactive versions of stories, especially those that offer audible reading on demand, offer students scaffolds for their emerging reading skills. The iBooks app offers books to download, including children's picture books and classics, word search features, audio speaking of words, highlighting, note taking, and sharing quotes/thoughts through social networking. K–6 schools can subscribe to Tumblebooks libraries, which provide a range of texts and teacher resources. Many books that are in the public domain (e.g., *Call of the Wild* by Jack London) have singular apps created for them with special features. Students can also check out e-books and audiobooks from public or school libraries using the OverDrive app. Bates et al. (2017) provide a useful framework for selecting, planning, and teaching with e-books for beginning elementary readers. For example, when using e-books, teachers should be aware that the audio narration should closely match the print and that games and graphics should not distract from meaning-making of the text. Teachers need to explicitly teach students about hyperlinked text or **interactive hot spot** to increase their use of these scaffolds that support reading.

COLLABORATIVE READING Collaborative reading that is facilitated in online spaces leads readers to share ideas and consider alternative perspectives on the reading topic. This contrasts with individual readers who focus on compiling facts (Leu et al., 2011). Such perspective broadening is important in new literacies. For instance, students can engage with peers in online book clubs, on blogs, or in threaded discussions in a learning management system. In small groups, students can analyze the text, offer their own personal response, and engage in online dialogue with peers.

However, as teachers encourage reading and foster these new literacies, they are also responsible for making sure that students are reading e-books and other digital formats in ways that best support reading comprehension. More research is needed in the area of digital reading and comprehension (Mangen & Weel, 2016); research findings are not definitive and reveal that different platforms have different affordances. For example, research by Schugar and Schugar (2014) found that students have a tendency to skip over important passages in digital environments and, as a result, can have significantly lower comprehension than they would in print environments. Yet, Wright, Fugett, and Caputa (2013) suggest that reading platform does not impact comprehension. Another study (Schneps, Thomson, Chen, Sonnert, & Pomplun, 2013) suggests that e-readers are more effective than paper texts for students with dyslexia because they can adjust the screen so that the text is less crowded, aiding reading. Overall, teachers must monitor reading and comprehension in all platforms to help students develop literacy skills.

SUPPORTED READING WITH SOFTWARE AND PORTABLE ASSISTIVE DEVICES To aid student reading, software is available to read passages using handheld devices (e.g., smartphones, e-readers, tablets), give definitions, and pronounce unfamiliar words aloud. These materials are particularly useful for students with reading difficulties or those for whom English is not a first language. Larson (2015) describes how e-book and e-reader reading behaviors differ from behaviors with print text. With e-books, students can make notes and comments directly on what they are reading, which helps them

Figure 10.7 Students Read E-Books with Audio Support from Handheld Devices
To aid student reading, software is available to read passages aloud using handheld devices.
(Photo by W. Wiencke)



better comprehend its meaning. E-books, according to Larson, also foster engagement with text, and some students might prefer e-books over print texts. Students can also adjust font size, access a built-in dictionary to examine word meanings and pronunciations, and use a text-to-speech feature to listen to or reread passages they find difficult. The device "reads" the word as the student points to it. Some devices and websites give a printed definition on the small screen or pop-up; others offer audio pronunciation. Still others are available to translate words to other languages. **Audiobooks** can be paired with print-based texts to support reading. In the classroom pictured in Figure 10.7, students use earphones or earbuds to access audio supports as they read e-books.

Talking word processors are software packages, such as Write:OutLoud from Don Johnston, Inc., that read typed words aloud. They have proven especially useful for students with disabilities. Computer operating systems also have built-in accessibility features for students with vision, hearing, and physical and motor skill challenges that can be leveraged for support in reading and writing activities. For example, Google Docs has a Voice Typing feature.

Nearpod is a digital slideshow-based interactive platform that can be used in the language arts or English classroom to supplement lessons, enhancing and structuring digital-based learning. Delacruz (2014) describes an early literacy teacher who supplements guided reading with Nearpod on student tablets. The teacher creates an e-text targeted for the students' reading level, polling questions, and quizzes. Students can read via their tablet, take assessments, and use drawing features to illustrate new vocabulary.

Strategies to Support Teaching the Writing Process

A plethora of technologies offers unique capabilities to help writers prepare to write and to improve the quality of their written work and creation of multimodal texts. Strategies are described here for each phase in the writing process, including preparing to write (prewriting); using modeling, online collaboration, and games to encourage writing; drafting, revising, and editing; and publishing student work.

INSTRUCTING STUDENTS WHO ARE PREPARING TO WRITE (PREWRITING)

Getting started is often one of the most difficult aspects of writing. During the prewriting stage, teachers communicate to students the format, audience, topic, purpose, and assessment method for the writing assignment. During this stage, students need to organize their thoughts graphically. For instance, if students are writing a fictional story, they need to brainstorm ideas for the story line, setting, and major characters; refine and organize those ideas; and generate a plan for presenting each story element in an intriguing manner. If the assignment is to write a report, students need to gather information on the

Video Example 10.2 Prewriting Using Concept Mapping Software

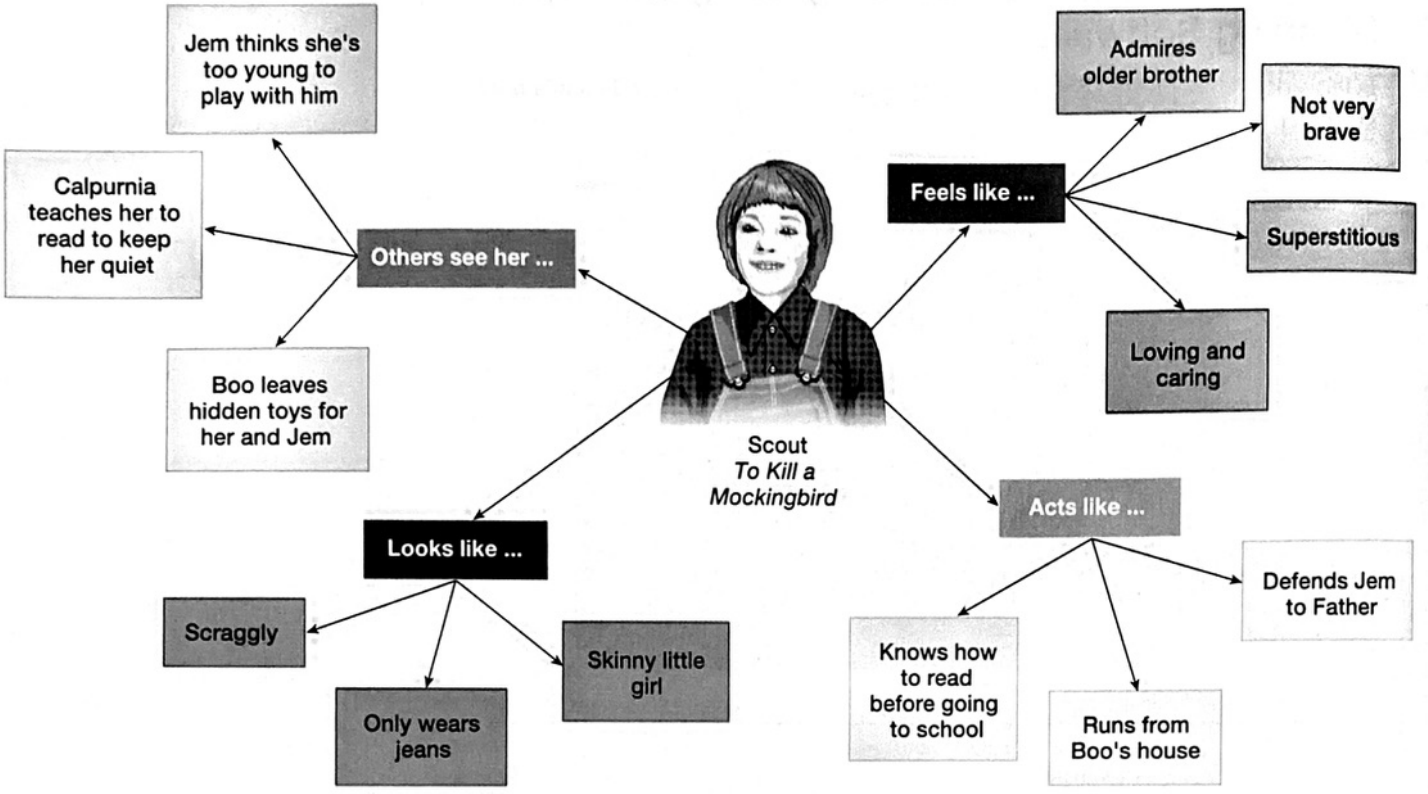
In this video, students use concept mapping software to organize their thoughts prior to writing.

topic from a variety of sources, synthesize and arrange this information into categories or subtopics, and generate a plan for presenting the information in a logical way.

All types of prewriting activities can be facilitated by using information organizing software, such as concept mapping, outlining, note taking, using content curation apps or features, and employing various strategies to encourage student writing.

- **Concept mapping**—Concept mapping software is popular as a prewriting planning tool, allowing students to produce an outline as a visual map. The most popular concept mapping programs are Kidspiration for grades K–3 and Inspiration (Inspiration Software, Inc.) for grades 4 and above; both products have tools for text-based outlining and visual diagramming. See an example concept map created with Inspiration in Figure 10.8. The diagramming side of the program can be used to create a variety of graphic displays, all of which are useful for students who like to think and plan using visual representations of their ideas. For example, students can easily brainstorm a cluster map of ideas for a story and then rearrange or expand on the ideas for later development. Students can also use the program to generate a hierarchical map of key concepts to be explored for a research paper and link those concepts with labels that demonstrate their conceptual relationship. MindMeister is a powerful iPad collaborative mind-mapping app that synchronizes with online MindMeister. Presentation software also offers easy drawing tools to create graphical diagrams.
- **Outlining**—Outlining is now integrated into almost all word processing programs and is easily accessible as a planning tool. The software automatically generates heading and subheading levels from typed information. The advantages to using outlines are that new headings/subheadings can be easily inserted anywhere in the outline and can be shifted around quickly to reflect a student's thinking and planning, and the prefixes serving as organizational clues are automatically changed to reflect revisions to the outline's organization. Some presentation tools, such as PowerPoint, offer an exportable outline for a word processor based on bulleted content.
- **Note taking**—Note taking occurs during class time in preparation for large writing projects. Many apps are available to support flexible note taking online and with mobiles. Evernote serves multiple computing platforms and allows users to easily

Figure 10.8 Concept Map for *To Kill a Mockingbird*



type written notes, take photos, record audio, and save webpages. It allows users to organize all these materials and share notes or collaborate with others.

- **Curation—Curation** involves research, reading, and organization. For reports, students can curate their online resources using apps such as Flipboard, Pinterest, or Padlet. These tools allow users to collect information that is pertinent to the writing project, organize it, and even share it with others. The sharing features support peer or teacher formative assessment during planning stages of a writing task.

USING MODELING, ONLINE COLLABORATION, AND GAMES TO ENCOURAGE WRITING It is critical that teachers both model the type of writing expected and provide environments that motivate students to write. For example, literary digital repositories (e.g., the Academy of American Poets) provide access to a variety of texts that can be used as mentor texts (Dorfman & Cappelli, 2017) or texts that serve as exemplars for analysis and study. In addition, several kinds of programs and websites are available to help the students who are slow to write to get started. These include story starters, such as Scholastic's whiteboard-ready site Story Starters and Scholastic's Poetry Idea Engine. Many language arts and writing teachers encourage student writing by assigning journaling. This assignment can be made more motivational by assigning blog posting (e.g., Kidblog) rather than paper journals, interactions on a **learning management system (LMS)** such as EdModo, or collaborative writing, such as with Google Docs, that supports real-time collaborative writing and editing. With Google Docs, the teacher and classmates can provide comments and peer feedback as part of the writing process.

See Technology Integration Example 10.1 for a way that blogs can encourage student writing. Collaborative projects that involve communication also provide a way to connect student writers with distant audiences. Online pen pal projects are popular and provide creative and authentic opportunities for communication. The ePALS Global Community connects millions of students and educators in 200 countries who want to work together. Some authors participate in Skype in the Classroom where authors are virtual guest speakers. With these exchanges, students have an audience for their writing, and their posts become interactive, peer-based conversations rather than just products for a grade in school (Bromley, 2010).

Technology Integration

Example 10.1

TITLE: Pets are Special

CONTENT AREA/TOPIC: Language arts, writing

GRADE LEVELS: All grades

ISTE STANDARDS•S: Standard 1—Empowered Learner; Standard 4—Innovative Designer; Standard 6—Creative Communicator; Standard 7—Global Communicator

CCSS: CCSS.ELA-LITERACY.W.4.1, CCSS.ELA-LITERACY.W.4.3.B, CCSS.ELA-LITERACY.W.4.10, CCSS.ELA-LITERACY.W.8.2.A, CCSS.ELA-LITERACY.W.8.3.B

DESCRIPTION: Blogs are a popular way to help students engage with text and provide opportunities for an authentic writing experience. One way to encourage writing in this way is to set up a classroom blog in which students exchange information about their current, desired, or adoptable pet(s). The teacher models how to use the blog by writing about pets and what is so special about them. Then students are encouraged to submit daily or weekly updates, including images and/or videos, to their posting and respond to each other's posts.

SOURCE: Based on concepts from Lorrie Jackson's "This Bird Can Blog: Online Writing with a Twist" article on blogs at the Educational World website: http://www.educationworld.com.

Finally, the use of game-based instruction can support writing. Barab, Pettyjohn, Gresalfi, Volk, and Solomou's (2012) research indicated that game-based instruction in argumentative writing led to better writing quality, more student engagement, and more on-task behavior as compared with a story-based approach. However, Beach (2012) argued that digital games are not necessarily required to have the same impact; he advocates the use of online role-play to encourage writing.

DRAFTING WITH WORD PROCESSORS As students draft their papers, they continue to plan, rethink, and reorganize their work, even while producing more text. Word processing programs aid drafting by allowing students to make changes as they write, thus making drafting a more fluid process. It is preferable if students learn to draft directly into a digital format, which facilitates later revision and editing, rather than to handwrite their drafts. When computer access is a concern, teachers sometimes ask students to handwrite their drafts and then to type them into the computer when one becomes available.

Video Example 10.3 Personalizing Content for Students through Technology

In this video, the teacher shares creative ways she personalizes learning and engages students, especially boys, in writing.

However, this is not the most efficient approach to drafting and should be avoided if possible because it provides a poor model for future work using word processing. Increased access through **one-to-one computing** and **Bring Your Own Device (BYOD)** policies is facilitating cloud-based writing with readily available tools such as G Suite and Google Docs (Raths, 2013). Teachers should promote technologies that best support writing in context. Students have used cell phone texting, instant messaging, and email to write collaboratively. Speech-to-text technologies, such as Dragon Dictation, could support moving thoughts or writing into a digital text format for flexible integration into digital works. For students completing research-based writing, Zotero supports citation of sources and automatic building of bibliographies within word processing programs.

MODELING TO SUPPORT REVISING AND EDITING WRITTEN DRAFTS Revising is the stage during which students make changes to content or structure that reflect decisions about how to improve overall quality. To revise well, students have to move from composing text to analyzing it and looking for what needs to be added, deleted, or rearranged. One of the best ways for teachers to assist in this process is to project a student's writing onto a screen or whiteboard and then model aloud the thinking and decision-making process that goes into analyzing and revising the text. If projected in this way, students can make changes to the text as other students watch and learn. By using a Google Doc, students can also simultaneously access the document and leave comments and/or view the document at their desk.

Other strategies that teachers use are videoconferencing and audio recording. Any of these along with subsequent student revisions may be archived on a wiki or other sharing site as examples so that students can access them for guidance at any time. Teachers can also use **screencasting** to capture movements on a computer screen with software such as Camtasia or Screencastify as a Google Chrome extension. Explain Everything and ShowMe apps can model revision processes and enable archiving.

Editing, as opposed to revising, is the process of refining a paper so that it adheres to standard conventions for spelling, syntax, punctuation, and style. Editing is a far more superficial task than revising but no less important. Teachers can use the following word processing features that support the editing process:

- **Spelling and grammar**—Some software underlines misspelled words in red and underlines passages in green to highlight possible grammar problems. Word processing programs are not always correct in identifying errors or suggested solutions, so teachers must model this editing aspect.
- **Autocorrect**—This built-in feature automatically detects and corrects misspelled words and incorrect capitalization. A user can alter the settings to automatically change other common errors that students make.
- **Track changes**—When activated, this editing feature shows changes as they are made to an original document. Changes can either be accepted or rejected later.
- **Comments**—This feature allows readers to insert notes that appear in the margins of a document. The use of the comments feature is preferable to handwritten comments because they are often easier to produce and read and because they stand out from text so that students can see them more clearly.
- **Thesaurus**—To improve written vocabulary use, students can also access the program's thesaurus, which offers a variety of synonyms to given words.
- **Highlighting**—Teachers can ask students to use color to highlight elements, such as the thesis sentence, supporting sentences, and transition sentences within a passage. This makes the assignment's structure more visible and aids editing and revising.

Each of these built-in features can save teachers editing time and make writing problems and mistakes more visible to students. Highlighter and iAnnotate apps support annotation and sharing features that can facilitate collaborative feedback and editing. Use of Google Docs is an excellent way to provide both editing and revision feedback. Ultimately, students use these tools to edit each other's papers.

Video Example 10.4 Benefits of Tablet Computers in the Classroom

In this video, the teacher shares how her students use tablets to engage in daily oral language and editing activities.

trategies to Support Multimodal Communication nd Digital Publishing

ew literacies also lead students to engage in multimodal communication, which volves accessing, reading, listening, writing, creating, producing, and publishing ritten texts; digital storytelling; digital portfolios; digital video/stories; podcasts or odcasts; and video games. Major challenges for students who use multimodal communication are consideration of the aesthetic features of the digital materials (e.g., fonts d backgrounds) and of how to use these features in ways that engage their audience.

Technology Integration

Example 10.2

TITLE: Important Moments: A Narration

CONTENT AREA/TOPIC: Language arts, digital literacy

GRADE LEVEL: 2

ISTE STANDARDS•S: Standard 1—Empowered Learner; Standard 4—Innovative Designer; Standard 6—Creative Communicator; Standard 7—Global Collaborator

CCSS: CCSS.ELA-LITERACY.RF.2.3, CCSS.ELA-LITERACY.W.2.3, CSS.ELA-LITERACY.W.2.5, CCSS.ELA-LITERACY.W.2.6

DESCRIPTION: Students begin by viewing digital stories previously produced by other children and learning the elements of telling a story. After an introduction to the software they will use (Microsoft PhotoStory, Windows Movie Maker, or Apple's iMovie), students choose a moment in their lives that was significant to them and write a short narrative about it. They learn how to put expression in their voices to convey emotions. They work with a partner to review their written narratives and give each other feedback. They create drawings, select photographs, or find permissible artwork that matches their story. They record the narration, learning how to use tempo, rate, and silences. Finally, they combine their stories together and illustrations and export as a movie. The movies "premiere" in the classroom, complete with popcorn, but can also be uploaded to a school YouTube account, EdModo, or other community sharing tool.

SOURCE: Based on concepts from Thesen, A., & Kira-Soteriou, J. (2011). Using digital storytelling to unlock student potential. *New England Reading Association Journal, 46*(2), 93–101.

DIGITAL STORYTELLING **Digital storytelling** is the process of using images and audio to tell the stories of lives, events, or eras. The StoryCenter site says that a digital story is a narrative someone tells in the first person in video format. Thesen and Kira-Soteriou (2011) and Rule (2011) are among many teachers who advocate using digital storytelling with students in order to enrich their literacy development. Thesen and Kira-Soteriou also offered detailed advice on how to implement this strategy in a classroom. Students engage in scriptwriting (e.g., using Celtx Script app), storyboarding ideas, and video/photo production and publish their work often as videos that they can distribute as vodcasts or audio podcasts. Many multimodal communication activities are highly motivating and lead students to examine their identity or try alternative identities, to contribute to diversifying students' views, and to examine authentic social or cultural issues. Further information and professional development opportunities are available at the StoryCenter site. Technologies that facilitate digital storytelling include:

- **Adobe Spark**—A way to create beautiful web-based stories ("sparks") with templates
- **Biteable**—A simple video maker that supports storytelling with animation
- **Sway**—A way to create interactive stories, presentations, and other communications with templates

Also see the Technology Integration Example 10.2 based on the approach described by Thesen and Kira-Soteriou.

SHARING MULTIMODAL TEXTS As mentioned earlier, students are more motivated to write when they know their work will be shared with others beyond the teacher. Now students can share their written works in forums such as websites, fan fiction sites, e-books, multimedia slide shows, and news broadcasts. Students appear to be highly motivated when engaging in collaborative **relay writing** (also called **chain writing**) of a novel in which one student or group of students writes one part and sends it on to the next student or group to add to it. They are also motivated to construct hypermedia digital stories and e-zines. Each of these activities involves students extending and adding to each other's writing (Beach, 2012).

Teachers should look for sites set up especially for publishing student work (e.g., Figment, Fan Fiction, KidPub, and Your Student News). Students and teachers can publish

Video Example 10.5 Video Strategies to Encourage Poetry Learning

In this video, a principal discusses how his school uses video resources to support students who are learning poetry writing.

their own multimodal digital books using iBooks Author or Adobe InDesign. To collect and maintain student work, teachers can facilitate the use of digital portfolios so that over time, they and their students can analyze the work, reflect on learning, and identify ways to improve in the future. Digital portfolios can be created in systems such as SeeSaw and Three Ring using Adobe Acrobat Professional, websites, blogs, and wikis.

VIDEO GAME DESIGN Some teachers are using game-based instruction, and others are creating opportunities for students to design and create their own video games using software such as GameMaker Studio, Gamestar Mechanic, Scratch, or Alice. Again, in the process, students engage in new literacies and multiliteracies, such as script writing, drawing, and animating. Research by Beavis (2014) suggests that video games function as a type of text that comes from popular culture; students can engage in analysis and critical thinking about gaming as text and literacy, such as writing about actions taken during video game play.

Strategies to Support Learning Literature

The other area of literacy after reading and writing instruction is learning about great works of literature and how to read literature with a discerning, critical, and appreciative eye. Three strategies for using technologies to support literature learning are described in this section: accessing online copies of published works, background information about authors, and support for literary analysis.

ACCESSING ONLINE COPIES OF PUBLISHED WORKS Many authored works whose copyrights have expired are now available free from online sources. In addition, Google has undertaken a project to digitize a large number of copyrighted and uncopyrighted texts of all kinds. Allowing students to access these digital versions of texts promotes reading by making texts less expensive and more easily accessible. Copyrighted e-books are available to students from public or school libraries using the OverDrive, iMLS HD, or AccessMyLibrary (AML): School Edition apps, depending on the library's adopted technologies. Many books in the iTunes bookstore are free; the iBooks, Google Play Books, and Kindle apps allow easy access with features that scaffold reading. **Open educational resources (OERs)** (e.g., Bonk, 2009), such as free web-based content, freely available nonfiction texts including news sites written for K–12 students, government documents, and more can also be used as reading content. Some resource include:

- Google Books Online
- Project Gutenberg
- Shakespeare Online
- The Literature Page
- The Literature Network
- The Bible Gateway
- Qur'an website

Nonfiction or **expository text** is especially useful in meeting Common Core Anchor Standard 10 (National Governors Association, 2010b, p. 10). Additionally, students themselves can create OERs. Such OERs are available through a **Creative Commons** license.

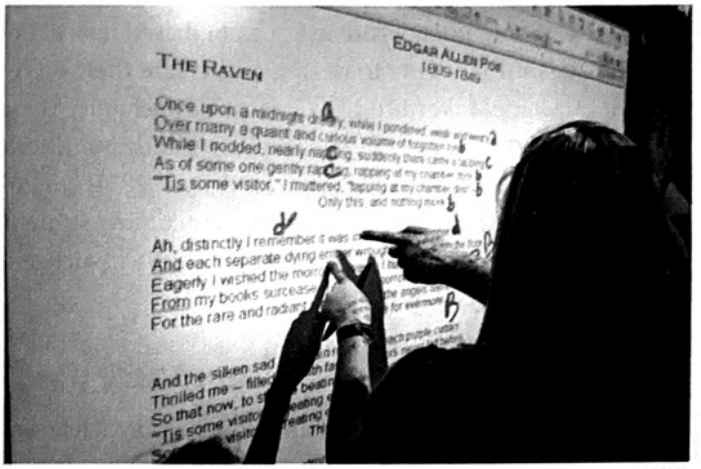
ACCESSING BACKGROUND INFORMATION ABOUT AUTHORS Because an author's life usually affects the choice of writing topics and can affect his or her style, teachers often want students to learn about authors' backgrounds as a path for understanding the authors' written works. Teachers must choose these sites judiciously because not all offer accurate or unbiased information. Some resource include:

- Famous People website
- Poets.org

Figure 10.9 Students Using Whiteboard for Literary Analysis

Projecting text on an interactive whiteboard makes literary analysis exercises more interactive and visual.

(Photo by W. Wiencke)



As with all websites, teachers and students can evaluate quality by noting the legitimacy of the sponsoring organization, how frequently the site is updated, whether the site author can be contacted, and spot-checking the accuracy of information. Most contemporary writers have their own websites or blogs (e.g., Mo Willems and Seymour Simon), and some offer online reading clubs or guest appearances.

ACCESSING SUPPORT FOR LITERARY ANALYSIS When teachers want to engage students in reading, annotating, and analyzing written works, they frequently ask students to focus on key words or phrases or look for patterns, such as meter. Several technology strategies support this kind of literary analysis:

- **Projecting text for analysis**—Projecting text onto an interactive whiteboard is a great way to demonstrate analysis for the whole class. For example, the students in Figure 10.9 are notating meter in Edgar Allan Poe's *The Raven*.
- **Using digital texts for analysis**—Using digital texts, such as on an e-reader device or a PDF file, students can do searches and count instances of words or phrases that indicate mood or metaphor (e.g., search for the word *dark* in Poe's works). Depending on the digital format capabilities, students can also make notations directly on the text or quantitatively analyze the patterns.
- **Digital collaborative annotation**—Students can use an add-on app or annotation extension such as Hypothes.is to digitally annotate an online text such as a PDF of a literary text or a webpage with literary or other text. Annotations, or notes in the margin of a text, can be added by a student individually or collaboratively in a group.

Application Exercise 10.2 Technology Integration Strategies for Instructional Needs in English and Language Arts

Teacher Growth in Technology Integration Strategies as Literacy Professionals

Given the ever-changing technologies and their implications for integration into English and language arts, literacy teachers need continued professional growth to keep up with the new requirements they must teach their students. This chapter has introduced information regarding key issues, strategies, and resources, but as a future teacher, you should

continue working toward fully understanding them, articulating your own plan for addressing issues in your teaching, and designing new ways to integrate the strategies throughout the curriculum to transform your teaching and your students' learning. Review the rubric in Table 10.3, which measures teachers' progress in integrating technology in English and language arts instruction.

As you work toward continued growth, we suggest advocating for four ways that professional development about technology integration can take place in your future schools:

1. Time to learn, explore, and develop literacy lessons
2. Access to the technologies
3. Access to more knowledge and knowledgeable others
4. Continued, direct support (Hutchison, 2012)

When professional development is not provided or does not meet optimal conditions noted in these ways, one solution is for teachers to grow as a literacy professional by developing themselves into connected educators who interact with professional educators around the world in order to construct new knowledge and deepen understanding

Table 10.3 Rubric to Measure Teacher Growth in English/Language Arts Technology Integration

Part I: Teachers Knowledge of English Language Arts Issues and Challenges			
	Basic Knowledge (1–2 points)	**Intermediate Knowledge (3–4 points)**	**Advanced Knowledge (5–6 points)**
	I can articulate the nature of the issue/challenge.	I can both articulate the nature of the issue/challenge and identify some of the possible ways to address it.	I can articulate and implement my own plan for addressing the issues/ challenges in my own teaching.
Teachers' changing responsibilities for the new literacies	❑	❑	❑
New instructional strategies to address new needs	❑	❑	❑
Classrooms' increasingly diverse learners	❑	❑	❑
Motivating students to read and write	❑	❑	❑
Keyboarding and cursive writing	❑	❑	❑
Transitioning to transformational learning	❑	❑	❑
Part II: Teachers' Technology Integration Strategies for English Language Arts			
	Basic Knowledge (1–2 points)	**Intermediate Knowledge (3–4 points)**	**Advanced Knowledge (5–6 points)**
	I can describe the strategies and identify technologies to carry them out.	I have designed at least 2 activities based on these strategies to enhance my teaching and my students' learning.	I have designed and implemented my own plan for integrating these strategies throughout my curriculum to enhance my teaching and my students' learning.
Strategies to support word fluency and vocabulary development	❑	❑	❑
Strategies to support reading comprehension and literacy development	❑	❑	❑
Strategies to support teaching the writing process	❑	❑	❑
Strategies to support multimodal communication and digital publishing	❑	❑	❑
Strategies to support learning literature	❑	❑	❑
Teacher growth in integration strategies	❑	❑	❑
Total Points	_____ **of 72 possible points**		

(Wong, 2013). Nussbaum-Beach and Hall's (2013) informative book recommends that teachers assume personal responsibility for professional learning through organized **professional learning communities (PLC)**, such as NCTE's Connected Community website, teacher-selected **personal learning networks (PLN)**, and interest-based **communities of practice (COP)**, such as the NCTE Blog. Wong (2013) also suggests that Twitter, blogs, and professional portfolios can help educators identify new trends, connect with other educators, share and receive ideas, build relationships, and ultimately become connected educators who know both the affordances and challenges of using digital tools (Beach, 2012) and support the development of new literacies. On Twitter, teachers can engage in professional learning by following some of these hashtags:

- #engchat
- #titletalk
- #yalit
- #literacy
- #2ndaryela
- #multiliteracy
- #grammar
- #litchat
- #teachingenglish
- #writing
- #infolit
- #books
- #weneeddiversebooks

All these activities contribute to belonging in digitally-based **connected learning communities**. In addition, follow state, federal, and professional websites, such as the Department of Education, NCTE, and ILA. Keep up with policy changes, position statements, and lesson resources to help you gain insight into the issues and challenges outlined in this chapter. Teachers who are in tune with the need for a revised definition of literacies can lead the way for new policies in schools that embrace technologies rather than fear them. Finally, educators can follow authors for children and young adults and encourage older students (e.g., over the age of 13) to follow favorite authors on Twitter (Semingson, 2016).

Check Your Understanding 10.2

Chapter 10 Summary

The following is a summary of the main points covered in this chapter.

1. **Issues and Challenges in English and Language Arts**—Each of these current issues or challenges has implications for how teachers can and should integrate technologies. These issues or challenges include:
   - Teachers' responsibilities for the new literacies are expanding and require teachers to examine how the Internet plays a core role in literate practices, to understand new 21st-century literacy competencies, and to become aware of the emergent technologies that support literacy development.
   - Teachers need new instructional strategies to address new learning needs in relation to reading and writing skills, information literacies, and social interaction.

- The increasing diversity of learners brings richness from students into the classroom, and teachers are teaching more students with a broad range of literacy skills.
- Teachers sometimes find difficulty in motivating students to read and write for study or for pleasure.
- Keyboarding and cursive writing require classroom instructional time that some teachers feel might not be needed.
- Building transformational learning and instruction with technology into the curriculum is a challenge when there is a lack of technology-related professional development.

2. **Technology Integration Strategies for English and Language Arts**—Technology integration strategies to address language-learning needs include the following:
   - To offer support for word fluency and vocabulary development, teachers can use online practice in matching letters and sounds and matching words with meanings as well as tools to engage students in vocabulary learning.
   - To support comprehension and literacy development, teachers can use digital text to encourage engaged reading, support reading with software and portable assistive devices, and scaffold reading development by using talking word processors.
   - To support teaching the writing process, teachers can use the following: prewriting strategies that include concept mapping, outlining, note taking, and content curation apps or features; strategies to encourage writing that include model or mentor texts, story starters, journaling, and word processing; whiteboard modeling to support revising and editing written drafts; and provision of feedback on student writing with editing tools such as grammar, spell-check, and thesaurus features.
   - To meet needs for multimodal communication and digital publishing, teachers can employ strategies for digital storytelling, sharing multimodal texts using fan fiction sites, e-books, multimedia slide shows, news broadcasts, and video game design.
   - To meet the needs for learning literature, teachers can access online copies of published works including many open educational resources for reading instruction and access online background information on authors. Teachers can also support literary analysis by projecting text on interactive whiteboards for analysis and using digital texts.
   - To continue growth in understanding issues and integration strategies for ELA, teachers can advocate for optimal technology-related professional development; develop into connected educators by building a personal learning network, participating in professional learning communities and communities of practice, and following Twitter hashtags; and follow state, federal, and professional websites for updated policy and lesson resources.

Technology Integration Workshop

1. Apply What You Learned

In this chapter, you learned about teaching and learning with technology in ELA. Now apply your understanding of these concepts by completing the following activities:

- Reread Mr. Caruso's lesson *My Side of the Story: Teaching Digital Literacies with a Multimedia Storytelling Project* at the beginning of this chapter. Pay close attention to Step 3 of his Turn-around Technology Integration Pedagogy and Planning (TTIPP) model to identify the technological possibilities for his problem of practice: getting students to connect more with characters in stories by analyzing their traits, motivations, conflicts, points of view, and relationships with others. Using your knowledge about technology integration strategies for ELA introduced in this chapter, generate at least one new technological possibility for targeting Mr. Caruso's problem of practice.
- Review how Mr. Caruso RATified the lesson in Step 5 of his TTIPP as represented in Figure 10.1. Use the RAT Matrix to analyze the role(s) and relative advantage that your new technological possibilities (identified in the last step) would play in the lesson. You must reflect on the roles your identified technological possibilities play as replacement, amplification, and/or transformation of instruction, student learning, and/or curriculum. Do you feel that your proposed technology would provide relative advantage?

2. Technology Integration Lesson Planning: Evaluating Lesson Plans

Complete the following exercise using the Technology Integration Examples 10.1 and 10.2, any lesson plan you find on the web, or one provided by your instructor.

a. Locate lesson ideas—Identify three lesson plans that focus on any of the technologies you learned about in this chapter, for example:
   - Online practice in matching letters and sounds or matching words with meanings

- Supporting prewriting with concept mapping, outlining, note taking, or curation apps
- Using grammar, spell-check, and thesaurus features to provide students with feedback on their writing
- Digital storytelling
- Promoting literacy through video game design
- Using digital tools to carry out literary analysis

b. Evaluate the lessons—Use the Technology Lesson Plan Evaluation Checklist and the RAT Matrix to evaluate each of the lessons you found. Based on the evaluation and your RATification of the lessons, would you adopt these lessons in the future? Why or why not?

3. Technology Integration Lesson Planning: Creating Lesson Plans with the TTIPP Model

Review how to implement the TTIPP model (see Figure 2.6) for technology integration planning and use Mr. Caruso's lesson *My Side of the Story: Teaching Digital Literacies with a Multimedia Storytelling Project* in this chapter as a model. Create your own technology-supported lesson that uses technologies to support learning in ELA by completing the following activities:

a. Describe Phase 1—Analysis of Learning and Teaching Assets and Needs:
- What is the problem of practice or main content topic in your lesson?
- What are the technology resources that your students, their families, you, and your school could bring as assets for the lesson?
- What are the technological possibilities for helping to solve or to address the identified problem of practice? Identify the technology(ies) you will integrate into the lesson and ensure that you have the skills and resources you need to carry it(them) out.

b. Describe Phase 2—Design of the Integration Framework:
- What are the objectives of the lesson plan?
- How will you assess your students' accomplishment of the objectives?
- What integration strategies are used in this lesson plan?
- What is the relative advantage of using the technology(ies) in this lesson?
- How would you prepare the learning environment?

c. Describe Phase 3—Post-instruction Analysis and Revisions:
- What strategies and/or instruments would you use to evaluate the success of this lesson in your classroom in order to determine revision needs?
- Add lesson descriptors—Create descriptors for your new lesson (e.g., grade level, content and topic areas, technologies used, ISTE standards, 21st-century learning standards).
- Save and share your new lesson—Save your lesson plan with all its descriptors and TTIPP model notes and share it with your peers and teacher if not others.

When you use your new lesson with students, be sure to assess it using the Technology Impact Checklist.