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Understanding Technology-based Young Adult Literature

Jerome Bruner (1990) describes human beings as storytelling creatures. We tell stories because they are "both a fundamental structure of the mind and a primary activity used by humans for meaning-making and organizing experience" (Ferdig, 2004, p. 475). Stories are also used as an important way for humans—and particularly adolescents—to construct and reconstruct their identities (MacAdams, 2004). Given these factors, it is not surprising that Young Adult (YA) literature plays a powerful role in the lives of many young adults. Researchers and educators have noted that young adults engage in reading literature as a way to make sense of life experiences, cope with emotions, imagine new possibilities, live vicariously through others, and escape to new worlds (Pytash, 2012, 2013; Ivey & Johnston, 2011).

The importance and the ubiquity of YA literature is not new; however, the role of technology, specifically Web 2.0/3.0 tools and digital media (e.g., the Internet, social media, video games, mobile devices, etc.), in young adults' lives is changing what stories are being told, how stories are being told, and how stories are being read. In fiction, technology now appears in characters' lives, often as an important plot setting or twist. In the real world, stories are being read through iPads, eReaders, and smartphones. Story content combines print text with image, video, sound, and even virtual reality. Given these shifts, we set out to further examine: a) how technology is represented in contemporary YA literature and b) how technology is influencing YA literature. We suggest five key intersections exist between YA literature and technology:

1. Technology as context in the book
2. Technology as a central premise of the book
3. Technology as the style of the book
4. Technology as dissemination of nonessential information
5. Technology is the book

The purpose of this article is to further explore and explain these five constructs. We begin with an overview of the theoretical perspectives that guide our understandings of technology and literacy. We then provide sections that include an overview of the framework construct (Definition and Description), immediately followed by examples of young adult literature that highlight the role of technology and a brief discussion of the impact of such literature. We follow this with implications for engaging technology-savvy young adults in the reading of YA literature.

Theoretical Perspectives

As technology shapes and influences young adults' literacy practices, new theories emerge to explain young adults' engagement with literacy in digital worlds (i.e., New London Group's [1996] "Pedagogy of Multiliteracies"; Lankshear and Knobel's [2003] conception of new literacies; Leu, Kinzer, Coiro, Castek, & Henry's [2013] new "dual level theory" of new literacies/New literacies). These theoretical perspectives provide understandings of the ways literacies are social practices, grounded in specific experiences and contexts and occurring through a variety of modes, including audio, visual, spatial, and other forms of representation.

The research supporting these theoretical lenses have documented the ways youth consume and produce digital media and technology (Black, 2008; boyd, 2014; Chandler-Olcott & Mahar, 2003; Curwood, 2013; Pytash, Hicks, & Ferdig, in press). Youth's frequent and regular engagement with technology influences the ways they communicate with others, learn about their worlds and others' worlds, and represent their identities and lived experiences. Most YA literature, particularly realistic fiction, is intended to be an accurate depiction of young adults' lives, experiences, and feelings. Therefore, one might expect YA literature to portray youth and their engagement with technology in a manner similar to the ways research has documented youths' technology use.

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Given this assumption, we set out to examine the ways technology and digital media are represented in YA literature. Our goal was to investigate whether YA literature includes stories about youth using technology and digital media and how authors are using digital media and technology to tell or enhance their stories. Our process for developing a framework employed a constant comparison analysis (Glaser & Strauss, 1967). First, we examined research documenting the ways young adults engage in literacy practices and focusing on young adults' literacy practices through technology. This exploration produced an initial framework.

Next, we examined award-winning YA titles, including books on the Young Adult Library Services Best Fiction for Young Adults lists and books that could be considered popular titles (e.g., bestseller lists from 2005 to the present). This included an exploration of novels that featured audio, video, images, and companion websites and digital media additions. We attempted to place these titles into the related categories, changing our categories as books fit or failed to fit into the developing schema. With each change in the framework, we returned to our previous titles to ensure framework consistency.

Finally, once satisfied that our framework was representative of the existing young adult literature that addressed technology or was delivered through technology, we returned to the research to triangulate our findings in a larger context. This entire process resulted in the identification of five key intersections between YA literature and technology, as listed above. It should be noted that there are many books integrating technology and digital media; the ones provided exemplify the constructs presented but are not meant to be exhaustive.

Technology as Context

Definition

Given the ubiquity of technology in the lives of adolescents, contemporary YA literature often includes the Internet, social media, smartphones, and other digital devices or tools within the content of the story. This can be passive (e.g., the character watched a video on YouTube), or it can be an active part of the plot (e.g., the characters hacked into the school computers). In this first framework component, technology is not the central theme, but including it is as timely and normal as having the characters eat or go to school.

Description

Over the course of 2015, the Pew Research Center released two reports providing findings focused on the role of technology and social media in adolescents' lives [Teens, Technology and Friendships (Lenhart, 2015b) and Teens, Social Media and Technology (Lenhart, 2015a)]. According to these reports, 92% of adolescents ages 13–17 go online daily, with 24% reporting they are online "almost constantly" (n.p). And when they are online, a majority of teens (71%) are using more than one social networking site. Again according to the Pew's findings, "[S]ocial media helps teens feel more connected to their friends' feelings and daily lives, and also offers teens a place to receive support from others during challenging times" (n.p). In addition, 64% of youth report meeting new friends online.

Social media is not the only space where young adults are developing friendships; video games are also providing a new avenue for relationship building. Of the adolescents surveyed, 84% of boys and 59% of girls play video games online or on their phone,

and 36% of adolescents report developing friendships through networked video games. These findings suggest that young adults' relationships are developed and maintained through multiple channels of communication. With an increase in access to cellphones and smartphones, adolescents are using text messaging and other messaging apps (e.g., *Kik* and *WhatsApp*), as well as email, instant messaging, and video chat as popular means for conversations.

The findings from the Pew reports are triangulated by other researchers who are interested in the role of technology in young adults' personal lives. According to boyd (2014), social media and other networked spaces provide adolescents ways to connect and maintain relationships with people in their communities, more specifically their friends. For young adults, new technologies provide "new social possibilities" (p. 10). Just as technology is ubiquitous in adolescents' lives, so is it ubiquitous in fictional characters' lives.

The Vigilante Poets of Selwyn Academy

Kate Hattemer's (2014) *The Vigilante Poets of Selwyn Academy* centers around the character of Ethan and his three best friends who attend Selwyn Arts Academy. The school is hosting a reality television show, *For Art's Sake*, and in protest of the show, Ethan and his friends secretly write and distribute a long poem in the tradition of Ezra Pound. Technology is present throughout the book, even when the characters are explaining why they shouldn't use technology to distribute the poem. Ethan asks the group, "Why can't we just post it online?" But his friends counter, "That would be far too easy," said Jackson scathingly . . . . Luke was nodding along. "Only cowards post it anonymously to the Internet. And then nobody would talk about it at school. We'd never hear reactions" (p. 97).

While they decide not to use technology to post their poem, they rely on the technological expertise of Jackson to hack into the school's computer system in order to expose files that reveal that the principal is accepting money from the television program. Jackson, in a language that hackers and coders would know, explains to his friends, "I found the external drive that stores the RAM terabits of the X-Pro Lotus footage, but unfortunately, given their inaccessible plaintext software, it'd be difficult for an adversary to access the data even from the room itself much less

from a cold-boot non-authenticated elsewhere locale" (p. 209).

Technology is present throughout the book, not just as a tool, but also as contextual information. In the book, Luke betrays the group and joins the reality show. After sneaking into the school, Luke is supposed to text the members of the group to let them know that the coast is clear. While at first the group thinks Luke simply forgot, they quickly realize he is cornered by the reality show producer and ultimately learn that he has decided to join the show.

Fake ID

Nick Pearson, the protagonist in Gail Giles's (2014) *Fake ID*, may seem like your average teenager, but over the last four years, Nick has obtained multiple identities. Four years prior, Nick, then named Tony, was living in Philadelphia. His father worked for a gangster, but when his father snitched, his family entered the Witness Protection program. Nick communicates with the Witness Protection program via cell phone: "My new cell vibrated in my back pocket. I grabbed it, checked the caller ID even though I knew it could be only one of two people" (p. 36).

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Nick becomes friends with Eli, an editor and lead investigator for the school newspaper. The boys bond during a two-hour video game binge, and Eli convinces Nick to write for the school paper. The mystery begins when Nick finds out that Eli has come upon a political conspiracy, Whispertown, and soon Eli is found dead. Nick and Eli's sister, Reya, decide to take a risk and investigate to find out who is responsible for Eli's death, which they think is linked to Whispertown. Nick and Reya exchange text messages as they work to unravel the conspiracy surrounding Whispertown, which they soon realize includes the mayor and Nick's dad. Also referenced in the book is social

media, including Twitter and Facebook. The book is a fast-paced thriller, and technology is mainly referenced through Nick's use of his cell phone and other forms of technology to communicate with others.

Yaqui Delgado Wants to Kick Your Ass

In Meg Medina's (2014) *Yaqui Delgado Wants to Kick Your Ass,* Piddy's life undergoes a series of disruptions a few months into her sophomore year in high school. It was bad enough when her best friend moved to Long Island, but what is worse is that her mother has decided they need to move into a new place in the city, which means Piddy must change schools. Worse yet, a girl from her new school tells her, "Yaqui Delgado wants to kick your ass," with no explanation of who Yaqui is or what Piddy has done to infuriate her. Piddy eventually learns that Yaqui thinks her boyfriend is interested in Piddy, and Piddy finds herself bullied by Yaqui and her friends. Feeling like she has no one to tell, Piddy isolates herself from her best friend, her mother, and her mother's best friend (who also cares for Piddy). The bullying escalates one afternoon when Yaqui and her friends follow Piddy home and beat her, leaving her body bruised, swollen, and half-naked. The fight is taped by one of the girls, and they attempt to further humiliate Piddy by posting the video on YouTube. Eventually a classmate tells the school administration about the horrendous bullying, and the YouTube video becomes the evidence Piddy needs to obtain a transfer back to her old school.

While the YouTube video is an example of how technology directly influences her life, throughout the novel, Piddy uses her cell phone to send texts, answer phone calls, and take pictures. And although the novel very much centers on Piddy's survival of Yaqui's bullying, it could also be described as a coming-of-age novel in that Piddy finds love and has to re-develop

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her relationships with her mom and best friend. In the end, she realizes she is stronger than she could ever imagine and that the relationships she has with her mom, Lila, and Mitza are bonds that cannot be broken.

Implications

Literature has been described as a mirror that can provide readers with an opportunity to reflect on their lives, recognize themselves, and consider their experiences. It is important for young adults to see themselves represented in young adult literature—who they are, the events they've experienced, and the ways they engage in the world. As many young adults are users of technology and social media, it is imperative that those experiences are highlighted in the books they read. To ignore this important contextual information would be a disservice to many adolescent readers who might wonder why a lead character wouldn't just pick up his or her cell phone, text someone, or send an email. The challenge for authors, of course, is that any technology written into the book immediately dates the book, which can have negative results on reader interest.

Technology as a Central Premise

Definition

YA literature is often praised for its ability to help adolescent readers handle angst (Ivey & Johnston, 2011). Topics for books include everything from teen pregnancy to cancer, from bullying to racism. Authors of books in this section use YA literature to help adolescents understand the role of technology in their lives. In these books, technology goes beyond mere contextual information to be the central focus or topic of the story.

Description

As technology continues to change and evolve, it influences our social practices, changing the ways we communicate, engage, and interact with each other (Leu et al., 2013). For example, adolescents use digital tools like Instagram to visually represent themselves and the activities in which they are engaged. These social practices, mediated by technology, are not only featured in YA literature, but can be central to the adolescents' identities and to what happens to them

in the story. The adolescent characters in these books define themselves by the technology they are using; the activities they engage in while using technology shape their perceptions of themselves and how they identify with the world. The technology also influences the problems they sometimes face and how they resolve conflict.

These books raise interesting questions about the role of technology in our lives and how technology influences the ways we interact with the world. These books also raise questions about how technology influences how we define ourselves and how others define us. The YA literature featured in this category prompts the question: *Who are we?*

Mr. Penumbra's 24-hour Bookstore

At the start of Robin Sloan's (2013) *Mr. Penumbra's 24-hour Bookstore*, readers learn that economic woes took Clay Jannon from work as a Web designer to employment as a clerk at Mr. Penumbra's 24-hour bookstore. After spending time working the graveyard shift, Clay becomes more curious about the store. Customers don't buy anything, but instead check out large, obscure volumes. Following the instructions of Mr. Penumbra, Clay catalogues each transaction, noting the appearance, behaviors, and mannerisms of the patrons. Clay eventually reads the books only to discover they are written in code. He initiates help from several people in his life to decipher the code—his roommate, a special effects artist, his best friend, a creator of "boob-simulation software," and his love interest, Kat, who works for Google in data visualization. Their efforts propel them on an adventure to unlock the mystery of the book and the larger secret society at the heart of the mystery. Technology is so central to the book that Clay and his friends use Google resources to help decipher the code.

Technology is continually referenced throughout the story. For example, Clay creates a Google Ad to attract customers and uses blogs, Wikipedia, and Twitter. He also chats with Kat online and vicariously attends her party on a night he is working at the bookstore. This book also hints at how technology impacts our everyday lives, as seen when Clay uses social media to catch up on the events he missed during the day. And when Clay and Kat end up in New York City, Clay explains that Kat plays with her phone because she is unable to figure out the *New York Times* newspaper. These depictions subtly raise questions about the role of technology in our lives.

Fangirl

The role of technology in shaping identity is evident in Rainbow Rowell's (2013) *Fangirl*. Cath is a fan of the Simon Snow series, a fictional series she and her twin sister, Wren, read while they were growing up. The girls credit the books with helping them cope with the pain of their mom leaving. They loved the books so much that together they wrote fan fiction, *Carry On, Simon*, based on the series.

Fangirl focuses on Cath's difficult transition to college. Her twin sister decides she needs space and becomes immersed in college life, and Cath must deal with a roommate who is not always friendly. Cath also ends up in a sometimes confusing romantic relationship. In addition to these life-changing events, her dedication to her Simon Snow fan fiction writing becomes central to the storyline. Wren is no longer interested in writing with Cath, even though *Carry On, Simon* is one of the most popular fan fiction series available online. For Cath, writing fan fiction brings her comfort and helps her deal with her anxiety, so she continues to write *Carry On, Simon* without Wren. In addition, Cath, who self-identifies as a writer, enrolls in an advanced creative writing course. For a project, she submits one of her fan fiction pieces, and the professor fails her for plagiarism. Central to the *Fangirl* plot, then, are questions about authorship in the 21st century and how fan fiction and self-publishing blur the lines. Cath must consider these questions as she struggles with the constant changes in her life and the fact that writing *Carry On, Simon* has become both how she copes and how she identifies herself. Although this is a story about family, sisterhood, romantic love, and friendship, *Fangirl* also advances the conversations about what it means to be an author in the age of the Internet.

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Guy in Real World

Questions about identity in the world of the Internet are also raised in *Guy in Real World* by Steve Breze-noff (2015). Lesh, a self-proclaimed metal-head, and Svetlana, an artist and Dungeons & Dragons master, collide one night while she is biking home. They later bond in their high school cafeteria and enter into a semi-flirtatious and romantic relationship. Meanwhile, Lesh, who is grounded by his parents, plays an online role-playing game to pass time. He creates the character, Svvetlala, resembling the real-life Svetlana. Lesh realizes that this might seem disturbing, but he can't seem to stop engaging in this fantasy world.

One night a person from the game tracks down and assaults the real-life Svetlana. Lesh must come to terms with what he did and work to help Svetlana understand his actions. The book raises important questions about who we are online versus who we are in "the real world" and how our online personas can complicate our "real world" lives. It also requires the reader to consider how our identities shift and change across the various online and in-person places that we occupy. In so doing, it helps readers consider how these spaces interact and sometimes collide.

Implications

The rapid advancements of technology transform the ways people communicate and interact with one another. In addition, technology opens new possibilities and transforms our existing notions of what it means to be literate. The books in this section highlight the complex ways adolescents use technology to read, write, and communicate with others. Literacy practices, like writing fan fiction or engaging in video games, are social practices that allow youth to enact and maintain their identities. This is complicated work, as these literate practices are tied to how adolescents position themselves and represent their identities. Because identity is not a stable construct, but rather

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This complicated form of identity construction and positioning is recognizable in YA literature as characters engage with technology and use digital media in ways that "position themselves as certain types of people" (Koss & Tucker-Raymond, 2014, p. 41). As YA literature continues to explore the important role of technology in both the lives of teens and the lives of fictional teens, one must ask *How does technology help or hinder young adults as they negotiate their worlds?* Furthermore, *does YA literature accurately portray the complicated ways that technology influences adolescents' social practices and resulting identities?* These books can also prompt readers to consider how young adults use technology in their everyday lives and why.

Technology as Style

Definition

Authors of YA literature make intentional decisions throughout the writing process. Some of these decisions revolve around plot, characterization, sentence structure, and word choice. Authors in this "Technology as Style" category have also made important stylistic choices in that these titles are formatted to include print versions of digital media within the books. Because technology has allowed for additional considerations of visual elements in YA literature, many authors are responding by not only writing about young adults' technology and social media use, but by embedding technology and media into the print form itself.

Description

Given the predominant presence of technology in young adults' lives, authors have considered how to incorporate print versions of technology in books. For example, *TTYL* (Myracle, 2004) was one of the first novels printed entirely as an instant message (IM) conversation, meaning readers were reading a conversation in IM form, yet it was printed in a traditional book. This trend has extended to YA novels incorporating multiple formats, such as social media feeds (e.g., Twitter and Facebook), blogs, and text messages. It is important to note that although the books in

this section include visual representations of technology and social media, they are still published as conventional printed books, prompting an important question: *What are the affordances and constraints of using physical representations of technology in YA literature?*

Vanishing Girls

An example of social media embedded into a YA novel is Lauren Oliver's (2015) *Vanishing Girls*. The novel tells the story of Dara and Nick, sisters who used to be inseparable; however, a terrible accident has left the sisters estranged. Dara vanishes on her birthday. Coincidently, a nine-year old girl, Madeline Snow, has also disappeared. Madeleine's disappearance begins as a sub-plot to Dara and Nick's story, and it is told through postings from an online newspaper and through online comments. There are advantages to this format. Readers are caught up in the story of Dara and Nick and not reading about Madeline's disappearance as a key element in the narrative. However, the consistent breaks in chapters to include online newspaper articles and comments let the reader know that Madeline's disappearance will be important to Dara and Nick's storyline. Madeline's disappearance becomes more and more intertwined with Dara and Nick as the story progresses. The online newspaper and comments reveal a subplot without detracting from the main storyline.

#16thingsithoughtweretrue

16 Things I Thought Were True by Janet Gurtler (2014) features Morgan, a Twitter addict, who is trying to regain her life after an embarrassing video went viral. Her mom has a near-death experience and ends up revealing the identity of Morgan's birth father. This sends Morgan on a road trip with two acquaintances who quickly become close friends. Each chapter opens with a statement Morgan thought was true and the hashtag #16thingsithoughtweretrue. Morgan is constantly on her phone and wants to reach 5,000 followers on Twitter before the end of the summer. Throughout the book, Morgan shares a few of her tweets. Although the much larger storyline is Morgan's attempt to locate her father, as well as the life events of her two new friends, Morgan's reliance on Twitter to regain her confidence is important to the story.

Implications

It should be noted that while various representations of media (e.g., Twitter, text messages, online discussion boards) are embedded into these books and are, therefore, part of the reading experience, this third category highlights books that are still in print form. It is important for readers to ask why authors would intentionally decide to include print versions of digital media and how they inform the story. For example, in *Vanishing Girls*, the online newspaper and online comments reveal a subplot to the book, which becomes central to the conclusion of Dara and Nick's story. Therefore, readers cannot just read the digital media that is included, but must ask, *what is the purpose of including the digital form within a print version of the book?*

Technology as Dissemination of Nonessential Information

Definition

YA literature authors have begun to explore the role of technology for disseminating content that is nonessential to the main storyline. Dissemination does not refer to a print format that is delivered statically in an electronic format (e.g., a book that is delivered via an e-reader in static, PDF-like format). Rather, in this category, the author has found a way to incorporate technology as part of the dissemination of the traditionally printed book; however, a reader can consume the traditional book without consulting these extra technological inclusions.

Description

Many books are now accompanied by websites with online discussion forums, games, digital badges, and trading cards. These resources tend to be somewhat extraneous in that they are not critical to the main storyline. But while readers do not have to engage with these materials in order to read the book, these additional resources may provide deeper engagement with and understanding of the book.

In addition to websites with resources related to the books, adolescents who are interested in taking a more participatory role can do so by becoming co-creators of texts based on the story. Fan fiction is gaining popularity as readers take on the role and voice of characters to remix and retell stories from varying

perspectives. The Pew Research Center reports that 21% of young adults remix works inspired by others (Lenhart, Ling, Campbell, & Purcell, 2010). These findings are supported by other researchers who have found that online spaces provide opportunities for fans to write and create personal responses to literature (Black, 2008; Chandler-Olcott & Mahar, 2003; Curwood, 2013).

The 39 Clues

The 39 Clues is a series of books written by popular YA authors, such as Rick Riordan (2008) and Margaret Peterson Haddix (2010). The books chronicle the adventures of Amy and Dan, siblings who learn that their family has included some of the most influential people in history, including Thomas Edison, Amelia Earhart, and Shakespeare. After their grandmother dies, Amy and Dan are on a quest to find 39 clues, the ingredients to a serum that can create the most powerful person on Earth. Many of the chapters include images of clues or handwritten details. In addition, books come with game cards that readers can collect and use to unlock missions online. The website also features forums, book puzzles, and games.

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Infinity Ring

Similar to The 39 Clues, Infinity Ring is also written by multiple authors, including James Dashner (2012). This science fiction adventure series follows Sera, Dak, and Riq as they attempt to save civilization. SQ, a mysterious group, has been altering major events, causing "Breaks" in history that result in a dramatically different 21st century. Dak and Sera are genius fifth graders, and Dak's scientist parents have created a time machine, the Infinity Ring. Dak, Sera, and Riq must work together as they go back in time, identify the "Breaks" in time, and fix them. Readers can go to the website to earn medals, play games, and discuss the books in forums.

Implications

The books in this section are traditional print books; however, they are accompanied by websites providing readers with a multiplatform experience. Jenkins (2007) uses the term "extension" to define additional media that "may provide insight into the characters and their motivations . . . flesh out aspects of the fictional world . . . or may bridge between events depicted in a series of sequels" (n.p.). There are many questions to be asked when exploring readers' experiences across traditional print books and online materials. For example, *what do readers learn about books when they have opportunities to follow characters and plot across media? How does engagement with websites that act as extensions sustain readers in the books?* In addition, Jenkins (2013) asks *how does the range of extensions "further [extend] the story work in new directions[?]"* (n.p). These not only raise questions about readers' experiences, but begin to have implications for authorship.

Technology Is the Book

Definition

Many books are now delivered electronically; however, their main format is still a traditional print form. A fifth category pushes beyond this traditional dissemination to include books whose stories cannot be told without the technology. The technology in these cases *is* the book. This can take a traditional form, like e-storybooks, or it can be more avant-garde and include the reader as author (Ferdig, 2004).

Description

Leu et al. (2013) theorize that "the Internet has become this generation's defining technology for literacy in our global community" (p. 1159). Researchers note that children and adolescents (ages 8–18) report reading 48 minutes per day online; this is more than the 43 minutes per day they read offline (Kaiser Family Foundation, 2005). While this is not a significant difference, as technology access continues to grow and more platforms become readily available, one could expect the online number to increase.

The role of technology has significantly influenced reading and writing, as new forms of texts combined with new media resources have created new ways of

communicating. Reading in an online context is a rich, complex, and often interactive experience. Integrated into stories, YA literature can include multiple forms, including video, image, audio, hyperlinks, video games, and animations. Jenkins (2007) popularized the term *transmedia storytelling,* which "represents a process where integral elements of a fiction get dispersed systematically across multiple delivery channels for the purpose of creating a unified and coordinated entertainment experience. Ideally, each medium makes its own unique contribution to the unfolding of the story" (n.p.). Transmedia storytelling creates a reading experience that is "multiple, multimodal, and multifaceted" (Leu et al., 2013).

Skeleton Creek

Skeleton Creek by Patrick Carman (2009) is a transmedia or multiplatform book, with part of the book written as journal entries and the other half as videos. Ryan and Sarah are the main characters, and the plot centers around their adventures investigating The Dredge, an abandoned gold dredge located in their town, Skeleton Creek. Ryan broke his leg at The Dredge, and now he and Sarah are no longer allowed to see each other or attempt to go to The Dredge. However, this doesn't stop them from exploring and trying to understand what happened to Old Joe Bush, a man who died in an accident and now haunts The Dredge. The story alternates between Ryan's journal and the videos that Sarah makes featuring trips to the Dredge and sightings of ghosts. The nontraditional print version of the story makes the book an accessible read, and Sarah's creepy videos not only move the storyline, but add a layer of suspense and mystery.

Inanimate Alice

While *Skeleton Creek* has a print component of the book, *Inanimate Alice*, written and directed by Kate Pullinger (2005–2015), is a completely online, interactive transmedia story. Using still images, moving images, text, and audio, the stories revolve around the experiences of Alice and the digital "friend" (Brad) she created. There are currently five episodes. The first episode begins when Alice is eight and living in China. Her dad does not return from searching for oil, and Alice and her mother go to find him. The last episode (to date) focuses on Alice as an older teenager who has traveled the world with her parents and is trying to find her place in the world.

The complete multimodal approach creates an interactive experience for readers. For example, in the first episode, as Alice's mother is driving, Alice distracts herself by taking pictures of flowers. When readers click on the flowers, they appear larger and then are saved on the screen. This is not limited to images; at one point Alice describes the night sky as humming and in response, readers hear a humming noise. In later episodes, Alice becomes a video-game animator, and readers play a game in order to progress through the story. This highly participatory story unfolds over the duration of Alice's life and across multiple platforms. *Inanimate Alice* has been recognized by the American Association of School Librarians as the 2012 Best Website of Teaching and Learning.

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Implications

Although some YA books provide websites, video games, and online resources as appendices, the books in this particular category are considered transmedia or multiplatform books, meaning they incorporate various modes or media directly into the storyline.

The intersection of technology and young adult literature ignites important questions about how readers engage with literature, particularly with books considered transmedia. Rosenblatt's transactional theory of literature (1938) suggests that reading is an active process rather than solely a "reaction" to the text or even an "interaction." Rosenblatt characterizes this as a "transaction," a continual "to and fro" process (Rosenblatt, 1938/1995, p. 26). This transaction is dependent upon the reader's stance: efferent reading or aesthetic reading. While efferent reading is focused on "the information to be required" (Rosenblatt, 1978/1994, p. 23), aesthetic reading "is centered directly on what he or she is living through during

his relationship with that particular text" (Rosenblatt, 1978/1994, p. 25). Rosenblatt (1938/1995) noted these stances are not exclusive, but readers are continually making choices about how they think about the text.

There are a number of questions one can ask, since transmedia stories include multiple modes that require young adults to interpret visual, auditory, and linguistic representations of literature, all during the same reading experience. For example, *how do readers transact with text when moving back and forth between modes, especially if the modes require different stances (e.g., efferent reading or aesthetic reading)?* In addition, *how do the modes work together to tell a cohesive story?* And furthermore, *how does each mode give the reader a unique experience that contributes to his/her transaction and overall enjoyment or understanding of the novel?*

Discussion and Implications

The purpose of this article was to explore the ways technology and digital media are represented in young adult literature. As researchers and educators continue to explore books with this emphasis, there are important questions that must be considered. With all YA literature, one must consider how young adults are represented in the literature; are their lives represented in an authentic and realistic manner? In addition, does YA literature teach readers about youth's social and literate practices as these practices relate to technology? This deeper probing requires readers to explore not only the ways adolescents use technology, but how they engage in their worlds. In addition, do the ways adolescents in YA literature engage with technology reinforce society's perceptions of adolescence, or does the portrayal in YA literature offer a diverse perspective on the importance and relevance

> [D]o the ways adolescents in YA literature engage with technology reinforce society's perceptions of adolescence, or does the portrayal in YA literature offer a diverse perspective on the importance and relevance of technology and digital media in young adults' lives?

of technology and digital media in young adults' lives? Furthermore, it is important to remember that the ways adolescents use technology and digital media are culturally ingrained, embedded in social contexts, and personally relevant. Therefore, one must ask how YA literature can reinforce or challenge societal ideas about adolescents and their technology use.

As critical readers of YA literature, it is also important to ask *who* the teenagers are who are using technology in YA literature. Are there groups of adolescents not being represented in the literature? For example, there is an ongoing conversation in social media (#diversekidlit) and in educator- and librarian-led initiatives about the importance of diversity in YA literature (*School Library Journal*, 2015). One can also ask if there are certain technology practices *not* being represented in the literature. If not, why? Analyzing YA literature with these questions in mind can provide a reading experience that challenges our stereotypes about youth and their technology use.

In addition, it is critical to consider how digital media and technology are shaping and changing the landscape of literature. Young adult literature told across multiple forms of media invites readers into the story in powerful ways. Interactive and participatory experiences are created as youth become participants in the storyline. Rather than an audience consuming the text, youth are co-creators of text and its meaning.

Transmedia Play is defined as "a way of thinking about children's experimentation with, expression through, and participation in media" (Alper & Herr Stephenson, 2013, p. 367). One of the elements of Transmedia Play is that it "promotes new approaches to reading, as children must learn to read both written and multimedia texts (across multiple media) and deeply (digging into the details of the narrative)" (Rodrigues & Bidarra, 2014, p. 43). This requires students to have a broad spectrum of literacy skills related to media and technology. Jenkins (2006) argues that students must engage in "Transmedia Navigation—the ability to follow the flow of stories and information across multiple modalities" (Jenkins, 2006, p. 56). Students must also engage in sophisticated thinking as they become metacognitive—for example, as they consider how they understand characters across media or how certain media convey elements of the story effectively. Jenkins continues to explain, "New media literacies involve the ability to think across media,

whether understood at the level of simple recogni-tion (identifying the same content as it is translated across different modes of representation), or at the level of narrative logic (understanding the connec-tions between story communicated through different media), or at the level of rhetoric (learning to express an idea within a single medium or across the media spectrum)" (p. 48).

Conclusion

While we organized our analysis around the five con-structs listed at the opening of this article, it is impor-tant to recognize that YA literature can span multiple categories. In other words, there are books, such as *Inanimate Alice*, that include tech as a storyline (#2) and are delivered online (#5). The intention of this work is not to fit each YA title into separate, exclusive categories, but rather to develop factors helpful in exploring the complicated and exciting intersection of YA literature and technology. This analysis highlights how the importance and ubiquity of technology in young adults' lives calls for a greater examination of the portrayal of the relationship between young adults and their technology use in YA literature. In addition, we recognize that our research questions are interre-lated and interconnected, as technologies included in a book can simultaneously be considered an influ-ence on YA literature; however, it is also important to note that technology is shaping the modes used in YA literature and that authors are including image, video, and audio in their novels, thus shaping young adults' reading processes.

End Note
It is worth noting that this article focuses on the consumption of YA literature and how technology is changing what and how adolescents are consuming. However, it would be shortsighted to overlook that these questions drive not only the reading of YA lit-erature, but also student writing of stories. We believe future research should also examine how these five areas are changing how young adults participate as writers or coauthors of young adult literature.

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