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Twitteracy: Tweeting as a New Literacy Practice

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Abstract

This article defines Twitter™; outlines the features, affordances, and common uses; and conceptualizes “tweeting” as a literacy practice, comprising both traditional and new literacies, and impacting both informal and formal learning settings. Also provided is an overview of traditional and new literacies, and insights from a scan of the research literature to date on tweeting as a literacy practice. The authors outline areas for inquiry and the challenges to conducting such research.

Key words: *digital literacies, micro-blogging, new literacies, social media, tweeting, Twitter*

In March 2012, *The New York Times* headlined a feature story with the implied question: “If Twitter is a work necessity ...” (Preston 2012). The article argued that digital literacy is becoming a required skill as employers increasingly want employees with social media savvy. If knowing how to build a community on Twitter®, present yourself on Facebook, engage with public issues via YouTube®, network on Foursquare®, and share your creations on Instagram are among the literacies that some employers expect people to have to secure a job or advance their careers, educators and educational researchers ought to play a role in helping people critically evaluate and cultivate best practices. Better theorization and study of the forms and functions of social media communication, and their relationship to the existing literacy curriculum, are needed to define and model promising digital literacy practices for our students.

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This article advances a step in this direction by focusing on one popular form of social media: Twitter. We consider tweeting practices through the lens of new literacy theories to inquire the following: (1) How do young people use Twitter in formal or informal learning settings, and with what results? (2) Can tweeting be considered a new literacy practice? (3) How do literacy practices on Twitter align with traditional literacy practices typically emphasized in standards-based curriculum?

We conceptualize “tweeting” as a literacy practice, comprising both traditional and new literacies. First, we outline the distinguishing features, demographics, and common uses of this socio-technical space. Next, we provide an overview of traditional and new literacies, and present insights from a scan of the research literature to date on Twitter as a new literacy practice. Third, we outline untapped but fertile areas for inquiry, and the challenges to conducting the types of research we advocate. Ultimately, we seek to advance understanding of how new literacies are enacted in educational settings for adolescent and adult learning.

Social Media: Definition and Impacts

Internet connectivity in schools, home, and communities has become pervasive, transforming desired competencies for learners, teachers, and administrators; the adoption of social media impacts our constructs for learning, instruction, and paths for future research (Greenhow, Robelia, and Hughes 2009). Social media, which is a term often used interchangeably with Web 2.0, refers to online applications that promote users, their interconnections, and user-generated content (Barnes 2006; Cormode and Krishnamurthy 2008). Social media include social network sites such as Facebook and MySpace®; video-sharing sites such as YouTube®; image-sharing sites such as Flickr®, Tumblr®, and Pinterest®; and microblogging sites such as Twitter. In the United States, two-thirds (66 percent) of online adults (Smith 2011) and three-quarters (73 percent) of online teenagers (aged 12–17) use social media (Lenhart, Purcell, Smith, and Zickuhr 2010).

Description of the Microblog Twitter

Microblogs are a form of social media that allow authors to create their own online content, tag it, and share it. One of the most popular microblogs is Twitter. Founded in 2006, Twitter is an information and social network with particular designed elements and user practices that distinguish it from other social media. These include its “follower structure,” link-sharing, use of “hashtags,” and real-time searching (Johnson 2009; boyd, Golder, and Lotan 2010; Kwak, Lee, Park, and Moon, 2010; Vieweg, Hughes, Starbird, and Palen 2010).

Twitter users display their interests, professional affiliations, and tweet history on a Profile page. Similar to Facebook friends, Followers are other Twitter users that subscribe to your tweets, and Following, in turn, lists your subscribers. One notable feature is the ability to read tweets from any public account. Since the vast majority of Twitter users make their tweets public (Madden 2012), it is very easy to see links to other Web content: news stories, an insider video shot at a conference, job postings, celebrity updates, questions, and replies.

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Common practices on Twitter include the use of @ plus the user name (e.g., @kappadeltapi or @chrisgreenhow) at the beginning of the tweet to indicate a message or reply to that user. The hashtag (#) is used to tag or organize tweets, designating them as part of a particular category or conversation, such as #AERA2012 (to designate the 2012 AERA Conference) or #edchat (which when queried displays a stream of tweets about a specific subject, education in this instance). In addition, the letters RT are used to signify a “retweet,” or passing along someone else’s tweet—like forwarding an e-mail, to a specific group of people. Twitter also features a Search box that allows users to search the “right now in-the-moment conversation,” an alternative to Google’s page-ranking approach (Johnson 2009).

Twitter Demographics

With more than 200 million active users (Bennett 2012) posting more than 175 million tweets per day (Infographics Labs 2012), Twitter has experienced substantial growth in its six years. Among online Americans, 16 percent of teenagers (12–17) and one-third of young adults (18–29) use Twitter (Smith 2011). Recent studies show that Twitter use among American teenagers doubled in less than two years, suggesting its increased adoption among high school and college-age youth, especially African-American teens, lower income teens, and girls (Lenhart 2012).

Twitter Usage Trends

People use Twitter for a host of reasons: finding and conversing with friends and acquaintances, making new contacts, connecting to public figures, sharing information, learning about current events, exploring job opportunities, and mobilizing support for issues (Java, Finin, Song, and Tseng 2007; boyd et al. 2010; Nielsen 2011). Research on the use of Twitter outside the field of education has emphasized its communicative, informational, and organizational properties, each of which is discussed briefly below.

Conversation and Developing or Maintaining Relationships

People tweet to develop and maintain relationships through conversation (Marwick and boyd 2011). Seventy-two percent of Twitter users post updates related to their personal lives, and about half send direct messages to other users (Smith and Rainie 2010). Thirty-eight percent of posts are conversational, with an additional 41 percent exchanging “social pleasantries” (Pear Analytics 2009).

Real-Time Social Search: Informing and Becoming Informed

Twitter is also a prominent method for information gathering and dissemination. Kwak et al. (2010) suggested that a RT generally reaches around 1,000 people, regardless of the number of followers one has. Another study examined 350 tweets and found that 20 percent of Twitter users passed on information (Naaman et al. 2010). Lotan et al. (2011) found that multiple types of people, including journalists, bloggers, non-media organizations, and activists, use Twitter to spread information.

Mobilization and Social Protest

Research has also focused on how Twitter is used for mobilization and social protest. Howard et al. (2011) analyzed social media discussions from Tunisia and Egypt and found that discussions on Twitter about democratic ideals “preceded revolutionary events on

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the ground" (3). Dunn (2011) described the "successful coordination of marches using Twitter" (19), and Khamis and Vaughan (2011) demonstrated that the use of Twitter helped to mobilize protestors. Next we consider these phenomena from the perspective of new literacy studies to consider how this technologic and contemporary development might influence the work, lives, and thinking of learners and teachers.

Overview of New Literacies

When learners and educators engage in social and technical practices on microblogging sites such as Twitter, they may simultaneously be developing the kinds of new literacies increasingly advocated in the educational reform literature (Coiro, Knobel, Lankshear, and Leu 2008; Partnership for 21st Century Skills 2008). To conceptualize tweeting practices, or "Twitteracy" (i.e., Twitter-literacy), as comprising traditional and new literacies, we must first define our terms in the context of emerging theory. We draw on theories in education, communication, and English to ground our conceptualization of the communicative and creative practices in Twitter. In particular, we draw on the interdisciplinary group of scholars in the *Handbook of Research in New Literacies* who discuss the content and methodological issues surrounding new literacy practices (Coiro et al. 2008; Livingstone, Van Couvering, and Thumim 2008).

Scholars working under the umbrella of new literacies assert the importance of print-based or traditional literacies as well as the developing role of digital literacies. Popular media frequently emphasize the importance of "literacy" and "basic literacy" as a skill set related to the decoding and encoding of printed texts. New literacies scholars conceptualize literacy from a broader, sociocultural perspective as a dynamic, situationally specific, multimodal, and socially mediated practice that both shapes and is shaped by digital technologies (Kress 2003; Hull and Nelson 2005; Lewis and Fabos 2005; Lankshear and Knobel 2006; Coiro et al. 2008). Coiro et al. (2008) argue that literacy is best conceived as dynamic and situationally specific; technologies of literacy available over the Internet are constantly changing. Literacy, therefore, entails "knowing how and when to make wise decisions about which technologies and which forms and functions of literacy most support one's purposes" (5).

Kress (2003) asserts that literacy practices are increasingly multimodal. Changes in media, from page to screen, make "it easy to use a multiplicity of *modes* ... the mode of image—still or moving ... music and sound" to convey one's message (6, emphasis in original). Multimodality enables meaning to be distributed across different modes; "reading" requires making meaning from the multiple modes present in a text (35). Multimodal texts can be interactive as users can "write back," thus blending authorship, readership, production, and consumption.

New literacy theorists also view literacy as being socially mediated (Gee 1999; Lewis and Fabos 2005; Black 2008). Technology tools shape relationships and practices. They facilitate or limit certain kinds of literacy practices in specific contexts. In turn, people experiment with technologies-in-use, trying to overcome their constraints and creating practices and modifications in the technologies themselves (Coiro et al. 2008).

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Davies (2012) argued that new technologies may facilitate new social literacy practices—that through interactions mediated by digital technologies people may be able to perform new social acts not previously possible (20). Lankshear and Knobel (2006) suggested that in judging literacy practices as novel (or not), we ought to attend to the presence of new ethos, or mindsets, such as people’s orientation toward participative, multimodal, distributed, and co-constructed texts rather than individualistic and author-centered creations. Moje (2009) suggested that we resist “the dichotomy of old and new and instead situate literate practices on more of a continuum” (359). Leander (2008) similarly advocated for methodologies that trace literacy practices across online and offline spaces, attending to their distinctiveness and interrelationship. These ideas foreground our discussion of the current state of research on tweeting in formal and informal learning settings, tweeting as a new literacy practice, and tweeting as it relates to traditional literacies.

Tweeting as a New (and Old) Literacy Practice

A review of the tables of contents from 14 major peer-reviewed journals reveals that published research on Twitter use in education is scant. We selected four categories of journals relevant to our areas of inquiry: general educational research journals, literacy journals, educational technology journals, and one interdisciplinary journal (i.e., *Journal of Computer-Mediated Communication*) that cut across these disciplines. For each journal, a table of contents scan was performed for the period from 2007–2012. Limiting our scan to this five-year range was justified, given how recently social media have developed. In the education research and educational technology journals, we searched for articles that discussed either “social media” or “new literacies.” For the literacy journals, we necessarily limited our search to articles that focused on both “social media” and “new literacies.” Furthermore, we narrowed the definition of social media to microblogging and social network sites, as these socio-technical spaces are most like Twitter. We included articles that involved students or teachers in multiple disciplines. We attended to the use of these social media in classrooms (K–12 and higher education), but also within informal learning settings. We also included relevant articles recommended to us by peers. These procedures yielded 43 published articles, of which 15 were relevant to our questions, and six discussed microblogging explicitly. Next, we present the main themes in this literature, as they address our guiding questions and contribute to our conceptualization of Twitteracy.

Tweeting for Formal or Informal Learning

How do young people use Twitter in formal and informal learning settings, and with what results? Young people’s varied use of Twitter in learning settings was found to support a number of positive educational outcomes, including increased student engagement, active learning, improved relationship between students and instructors, and higher grades (Junco, Heiberger, and Loken 2011). Junco et al. (2011) used the National Survey of Student Engagement to investigate student engagement—defined as the time and effort students invest in educational activities related to educational outcomes (Kuh 2009)—among pre-health undergraduate students. They found that students’ use of Twitter was linked to a number of educative aims, including fostering “rich discussion of [literature] themes” through students’ directly addressing other students, peer questioning, and reflection (130). Tweeting by students also supported their making connections with peers around shared interests, which contributed to high levels of student engagement. In a second

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study, Junco, Elavsky, and Heiberger (forthcoming) found that structured use of Twitter in college courses, based on Chickering and Gamson's learning principles (1987), led to increased engagement and higher grades. These principles included (1) student–faculty contact, (2) cooperation among students, (3) active learning, (4) prompt feedback, (5) emphasizing time on task, (6) communicating high expectations, and (7) respecting diversity. The researchers recommended instructional strategies for using Twitter, including answering students' questions, encouraging discussions, helping students connect, and providing support for learning and achievement (Junco et al. forthcoming).

Dunlap and Lowenthal (2010) examined how Twitter can support the development of "social presence," defined as learners' ability "project their personal characteristics into the community" (130). They investigated Twitter adoption in an online instructional design course and found that Twitter's just-in-time design allowed students and instructors to engage in sharing, collaboration, brainstorming, problem-solving, and creating (131). Participants noted that using Twitter for socializing and learning purposes felt more "natural and immediate" than did using a formal learning management system (132). Other benefits to using Twitter were the ability to "write concisely ... for an audience," which the researchers believed may help students forge a professional community of practice (132).

Examining Twitter use in an undergraduate marketing class through the lens of experiential learning (Kolb 1984), Rinaldo, Tapp, and Laverie (2011) found that Twitter supported various marketing-related functions: advertising, interacting with various elements of the supply chain, communicating with customers, and initiating viral marketing schemes, thereby creating authentic opportunities for faculty–student interaction. Students were guided to interact with marketing professionals, communicate with them, and reflect on the experience. Student feedback was overwhelmingly positive, noting that tweeting added "depth to our class discussions" by offering "different views" of the course content (200).

Ebner, Lienhardt, Rohs, and Meyer (2010) used case study methods to explore whether and how graduate students studying supply chain management used microblogs to document their learning process and facilitate peer interactions. Ebner et al. (2010) found that students' average number of daily posts increased over a six-week period. They concluded that a high volume of student-to-student communication—each student posted 53 times per week—could support informal learning by facilitating "continuous and transparent communication" (93).

Elavsky, Mislán, and Elavsky (2011) examined tweeting practices in a large undergraduate media studies course where instructors sought to integrate student opinion into the classroom discourse and increase their engagement with course themes. They found that, although not required, the majority of the students chose to tweet: about one-quarter of the tweets were directed at a peer, and the average number of tweets per user was 14, or about one tweet per week. They concluded that using Twitter "deepened and extended the class' potential for engagement with course themes" (225) by combining online and offline discourse.

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In summary, these findings suggest that Twitter use in higher education may facilitate increased student engagement with course content and increased student-to-student or student-instructor interactions—potentially leading to stronger positive relationships that improve learning and to the design of richer experiential or authentic learning experiences.

Conceptualization of Twitteracy

Next we inquired the following: Can tweeting be considered a new literacy practice? To answer this question we scanned the research literature and found few empirical studies that addressed learners' use of social media—and microblogging specifically—from a new literacy perspective. Moreover, we found no conceptual or empirical articles that discussed tweeting from the perspective of new literacy studies; therefore, our discussion necessarily draws from research on literacy practices and social media generally.

As scholars work to define literacy in various contexts, there is keen interest in understanding naturally occurring literacy practices within youth-initiated virtual spaces and how these intersect with or suggest shifts in formalized school practices. Black (2008), for example, examined the literacy practices of adolescent immigrant and English-language learners (ELLs) in online fan fiction communities (Fanfiction.net). Fan fictions are texts written about popular culture by fans. Immigrant youth participating in such online global social settings also frequently participate in other technology-mediated environments such as social network sites. Black conducted a longitudinal ethnographic study of learners' literate and social activities. She found that ELLs are developing language, literacy, and social skills across national borders as they use new semiotic forms to communicate, share information, and negotiate meaning with youth in different countries. These literacy forms included the manipulation of popular cultural and textual artifacts, turning out unique combinations of text, image, color, and sound that express their response to popular culture.

Davies (2012) examined United Kingdom teenagers' literacy practices on Facebook. She conducted semistructured interviews, conducted talk-alouds of teenagers' Facebook profiles, and gathered screenshots of their Facebook pages to discover how their literacy practices could be considered new literacy practices. She theorized that Facebook may bring new dimensions to two aspects of teenagers' existing social practices: self-presentation and friendship management. She found that Facebook indeed provided new ways for teenagers to present themselves; the social network site helped teens create a constant presence with friends online even when away from the technology. Facebook photos helped teens construct "pictorial narratives" to which friends may comment, add meanings, or generate tags as means of interaction (Davies 2012, 27). Teens' involvement in these "photogenic events" keeps their presence in the network open, even when offline.

Davies (2012) also found that Facebook offered new ways of managing friendships. It enabled teens to continue previous conversations and stay in touch even when apart, such as re-enacting morning gossip, via Facebook's status updates, while in the "privacy" of their homes. Facebook's automatic self-publishing capabilities allowed teens to "collaboratively create a new cultural context," as Davies explained in her example of two

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friends who used Facebook while watching the same television program to create a sense of occupying the same physical space. She pointed out that for the teens to construct a sense of shared intimacy, within Facebook's semi-public space, required the following:

... complex text-making practices and a skilled reading of the situation—as well as an ability to create particular contexts.... They share information that seems private, but we later see that they are making definite decisions about what really is confidential and move to another space when they really want privacy.” (27)

She concluded that new literacy practices in Facebook dovetail with teens' presentation of self in offline contexts.

Greenhow and Robelia (2009a; 2009b), in examining the online social networking practices of high school students from low-income families from the perspective of new literacy studies, found that students also used their social network, MySpace, to construct and maintain a constant presence or “stay in the social loop” during time spent apart. Students reported that keeping up with friends on MySpace helped them avoid potentially awkward exchanges offline with friends not seen in a while. Interspersed with the textual elements on students' MySpace pages were visual (background graphics and photographs) and audio elements (e.g., music) that could bring attention. These “My Profile” compositions blurred distinctions between writing and speech, between composing and graphic design, and between reading and viewing, similar to the fan fiction compositions that Black (2008) describes. Co-produced and dynamically updated MySpace profiles made the task of “reading” and inserting oneself into the online conversation considerably complex (Kress 2003).

Perkel (2008) observed copy-and-pasting practices among adolescent MySpace users. Combining Jenkins' (1992) theories of appropriation and reuse of media with new literacy theories, he speculated that MySpace is an informal learning environment that fosters new literacy practices: “The expressive power found in the creation of a MySpace profile concerns a technically simple but socially complex practice: the copying and pasting of code as a way to appropriate and reuse other people's media products” (1).

Erstad, Gilje, and de Lange (2007) discuss youth's “remixing” practices online—selecting, cutting, pasting, and combining “semiotic resources” (downloaded and uploaded files found on the Internet) into new digital and multimodal texts. The process of finding and re-using resources, they argue, highlights the inter-relationship between analysis (reading) and production (writing) (185). The notion of remixing can be extended to other acts of consumption and production within social network sites (e.g., video-sharing, blog-sharing, photo-sharing, etc.).

Together, these studies suggest how literacy practices on social network sites can be viewed as new social literacy practices; they allow young people to perform new social acts not previously possible, and they demonstrate the new ethos that Lankshear and Knobel (2006) describe. Authorship is neither individualistic nor completely original. Remixing is fundamental to how young people create “new” texts (Alvermann 2008).

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We posit that similar themes are playing out on Twitter and offer a few examples of how tweeting might be considered and examined as a new literacy practice. First, literacy practices in Twitter fit the definition of new literacies outlined by Coiro et al. (2008): they are multimodal, dynamically updating, situationally specific, and socially mediated practices. Like the unique combinations of text, images, sound, and color that characterize teens' self-expressions on social network sites, individual tweets and retweets typically comprise a multiplicity of modes, demonstrated via abbreviated hyperlinks to other online content (e.g., photos, videos, other Web pages) (boyd et al. 2010; Gleason submitted).

A tweet stream is a constantly evolving, co-constructed conversation. Establishing a presence and inserting oneself into the conversation requires understanding conventions that have arisen in the community and deciding when and how to use them to support one's purposes. For instance, the retweet (RT) is a socio-technical practice not originally conceived of by Twitter's developers. It emerged from users redesigning the tool as they sought ways to both distribute information and encourage participation in the public discourse (boyd et al. 2010). The conventions of "mentioning" another user in the body of one's tweet with the @ symbol (e.g., @), directly, privately messaging someone by beginning a tweet with the username (e.g., @sree or DM @sree), or grouping a topic or event by the hashtag (#), e.g., #edutech or #inauguration) were design elements created by the Twitter user base. New literacy scholar, James Gee (1999), has argued that the use of language and other modes of meaning by user groups or individuals is tied to their relevance to the users' personal, social, cultural, historical, or economic lives (601). Effective communication on Twitter requires understanding the community's unique norms for self-presentation such as constructing an effective Bio (biography or profile) and constructing good following and follower lists. It also requires understanding norms for participation, including registration of feedback via (replies), recognition (mentions), information distribution (retweets), and organized conversations (hashtags). These elements take on certain meanings that are different from how they are constructed in other online and offline contexts, and therefore, indicate emerging new literacy practices. A topic for further inquiry is how tweeting may contribute to the rise of new social acts (e.g., new ways of staying informed, creating and expressing social protest, managing impressions, or developing identity) that we see in other social media spaces, and what these acts mean to those involved.

Twitteracy and the Literacy Curriculum

Our third question asked this: How do tweeting practices align with standards-based literacy curricula? A few researchers have consciously sought to connect teenagers' out-of-school online literacy practices to school curriculum. They are theorizing and demonstrating how "new" and "old" literacies overlap and interrelate online and off. Black (2008) draws on recent 21st century skills frameworks (National Council of Teachers of English 2007; Partnership for 21st Century Skills 2008) to explore how the forms of literacy that adolescent ELLs practiced in out-of-school fan fiction-related spaces align with competencies valued in school. Conducting qualitative case studies of three ELLs, she found that these informal, online writing spaces provided students with access to traditional literacy learning via mentors and promoted their affiliation with composing and interacting in English. They were able to practice and improve their English-language

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and composition skills, develop their technological literacy—the ability to choose appropriate technology for specific activities, and develop their information literacy—the ability to find, select, critically evaluate, and synthesize a range of information across media (Black 2009, 693).

Similarly, Kabilan, Ahmad, and Abidin (2010) examined young people's use of Facebook to bolster English language learning. They found that the majority of students surveyed indicated that the site could enhance their motivation to read in English. Sixty-eight percent indicated that Facebook could improve their confidence to write in English. Kabilan et al. (2010) noted that the use of Facebook incorporated traditional literacies, such as vocabulary learning, with new literacies, such as developing personal profiles and commenting on other students' profiles.

Greenhow and Robelia (2009a; 2009b) found that students' written comments within MySpace demonstrated consideration of word choice, tone, subject matter, and style—all elements of formalized writing valued in school. However, students perceived little overlap between their literacy practices within MySpace and school-sanctioned practices. They perceived their literacy practices on MySpace as "more relaxed":

With school you're always writing formal things like essays and you have to stick to standard English ... when you go on MySpace, it's more relaxed. You can use slang, create your own words, like seriously, I've had friends who create their own words on there ... funny words, you can mess around." (Greenhoco & Robelia 2009a, 1153)

West (2008) reported similar findings in her examination of high school students' blogging practices in an American literature course. She found that students constructed "hybrid social languages," such as an informal writing style characteristic of instant messaging (e.g., frequent use of abbreviations and acronyms and a relaxed approach to standard English grammar, usage, and mechanics), but they also used standard literary response strategies (596). Such findings are consistent with other studies reporting the disconnect students frequently experience between in-school and out-of-school practices with new media, despite evidence of their overlap (Lenhart, Arafeh, Smith, and McGill 2008).

The studies above suggest the complex interrelationship that may be developing between traditional, print-based literacy skills and standards and new social literacy practices that traverse online and offline spaces. Drawing from this work, we speculate that young people's tweeting practices may open up opportunities for their development of standard language proficiencies in several ways: (1) improving students' motivation and engagement with course content; (2) increasing student–student or student–instructor interactions, which creates more opportunities for feedback and mentoring; and (3) offering lower barriers to publishing and a more "relaxed" writing style, which can encourage self-expression, creativity, playfulness, and risk-taking. In fact, Warschauer (2007) argues that traditional literacies may be critical starting points for engaging novel communicative practices, which is an observation that aligns with Davies's (2012) finding that Facebooking required complex text-making and reading skills.

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Tweeting practices may also encourage the development of 21st century skills, such as information literacy skills. Following live tweet streams and searching Twitter's linguistic corpus, users can get an idea of the "ambient affiliative network" surrounding a topic or event—such as Obama's victory in the 2008 U.S. Presidential election (Zappavigna 2011). The real-time, social search afforded on Twitter is a very different approach to information search and retrieval than is afforded using the Google search engine. Yet, understanding both approaches and their relative advantages and disadvantages is important to learners' overall development of information literacy.

Finally, our synthesis suggests that students and teachers might benefit when Twitter is used as a "backchannel" for communication within or between classes. Instructors and students can use Twitter to ask and answer questions, brainstorm, focus or extend in-class discussions, help students connect, collaboratively generate information, and learn concise writing styles. Students' and teachers' tweeting practices may contribute to their development of new and old literacies in the ways we have mentioned.

Opportunities for Further Inquiry

To further our understanding of tweeting as a new literacy practice and its relationship to learners' development of traditional, school-sanctioned practices, research is needed along several lines. First, we need large-scale and in-depth studies that examine tweeting practices among various learner subgroups (students in secondary school as well as college students; students from various ethnic and socioeconomic groups; males and females; language learners; students and instructors) to discern commonalities and variation in practices.

Second, we need studies that practice "connected methodologies" (Leander 2008)—collecting data on youth-initiated tweeting practices—and the potential learning opportunities therein across school and non-school settings. Such research would help us understand how new literacy practices on Twitter spill over and interact with students' literacy practices in other contexts.

Third, we need research that examines not just individual tweets, tweet streams, and other online evidence, but attends to how participants understand their experiences and place within the Twitter community and beyond. Such research would help us discover social acts made possible with Twitter, if any. It might also help us understand how young people, through tweeting, may be creating new cultural constructs for themselves that foster complex text-making, skilled reading, sophisticated forms of feedback, and other skills that connect with the formal literacy curriculum.

Alvermann (2008) suggested that we need a pedagogy of critical literacies as a starting point for analyzing online and offline texts. We see the need for research that helps us to understand how, why, and in whose interests particular texts (e.g., tweet streams) might work, followed by strategies for critiquing texts and their related social formations and cultural assumptions.

Finally, we need more studies of teachers' integration of social media such as Twitter in secondary schools and in higher education. Such studies ought to examine teachers'

purposes for social media integration, their development of technological pedagogical content knowledge (Mishra and Koehler 2006), and the effect of their technology-mediated practices on students' learning or the effectiveness of the teaching.

Pursuing these lines of inquiry in K–12 classrooms poses challenges. Though anecdotal evidence of promising educational uses of Twitter is increasing in the popular media (Lang 2012; Phillips 2012), social media, with its highly public nature, are banned in many schools. Educators, school administrators, and parents likely are concerned about social media applications that share users' contacts with data warehouses or contribute to advances in micro-targeted advertising and the rise of consumerism among youth. In addition, students' uses of social media such as Twitter raise questions about authority, control, content management (e.g., managing what is shared, received, tagged, and remixed), security, and copyright. These issues are currently being negotiated at the school, district, and state levels. The implications of this are that much of the near-term research will occur outside of classrooms or among older student subgroups until there is an accumulation of evidence that suggests that the benefits of social media integration in learning environments outweigh the costs.

References

- Alvermann, D. E. 2008. Why bother theorizing adolescents' online literacies for classroom practice and research? *Journal of Adolescent and Adult Literacy* 52(1): 8–19.
- Barnes, S. 2006. A privacy paradox: Social networking in the United States. *First Monday* 11(9): September 4. Available at: <http://firstmonday.org/htbin/cgiwrap/bin/ojs/index.php/fm/article/view/1394/1312>.
- Bennett, S. 2012. Twitter on track for 500 million total users by March, 250 million active users by end of 2012. *All Twitter: The Unofficial Twitter Resource* (blog), January 13. Available at: www.mediabistro.com/alltwitter/twitter-active-total-users_b17655.
- Black, R. W. 2008. Just don't call them cartoons: The new literacy spaces of anime, manga and fanfiction. In *Handbook of research on new literacies*, ed. J. Coiro, M. Knobel, C. Lankshear, and D. Leu, 583–610. New York: Lawrence Erlbaum Associates.
- Black, R. W. 2009. English-language learners, fan communities, and 21st-century skills. *Journal of Adolescent and Adult Literacy* 52(8): 688–97.
- boyd, d., S. Golder, and G. Lotan. 2010. Tweet, tweet, retweet: Conversational aspects of retweeting on Twitter. Paper presented at the Hawaii International Conference on Systems Science–43, IEEE, January 6, Kauai, HI.
- Chickering, A. W., and Z. F. Gamson. 1987. Seven principles for good practice in undergraduate education. *Washington Center News* (Fall): 1–7.
- Coiro, J., M. Knobel, C. Lankshear, and D. Leu. 2008. Central issues in new literacies and new literacies research. In *Handbook of research on new literacies*, ed. J. Coiro, M. Knobel, C. Lankshear, and D. Leu, 1–21. New York: Lawrence Erlbaum Associates.
- Cormode, G., and B. Krishnamurthy. 2008. Key differences between Web 1.0 and Web 2.0. *First Monday* 13(6): June 2. Available at: <http://firstmonday.org/htbin/cgiwrap/bin/ojs/index.php/fm/rt/printerFriendly/2125/1972>.
- Davies, J. 2012. Facework on Facebook as a new literacy practice. *Computers & Education* 59(1): 19–29.

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- Dunlap, J. C., and P. R. Lowenthal. 2010. Tweeting the night away: Using Twitter to enhance social presence. *Journal of Information Systems Education* 20(2): 129–36.
- Dunn, K. 2011. Unplugging a nation: State media strategy during Egypt's January 25 uprising. *Fletcher Forum on World Affairs* 35(2): 15–24.
- Ebner, M., C. Lienhardt, M. Rohs, and I. Meyer. 2010. Microblogs in higher education: A chance to facilitate informal and process-oriented learning? *Computers & Education* 55(1): 92–100.
- Elavsky, C. M., C. Mislán, and S. Elavsky. 2011. When talking less is more: Exploring outcomes of Twitter usage in the large-lecture hall. *Learning, Media and Technology* 36(3): 215–33.
- Erstad, O., O. Gilje, and T. de Lange. 2007. Re-mixing multimodal resources: Multiliteracies and digital production in Norwegian media education. *Learning, Media and Technology* 32(2): 183–98.
- Gee, J. 1999. *An introduction to discourse analysis: Theory and method*. London: Routledge.
- Gleason, B. Under review. #Occupy about: Exploring Wall Street: informal learning about a social movement on Twitter. *American Behavioral Scientist*, special issue on New Media and Social Unrest.
- Greenhow, C., and E. Robelia. 2009a. Old communication, new literacies: Social network sites as social learning resources. *Journal of Computer-Mediated Communication* 14(4): 1130–61.
- Greenhow, C., and E. Robelia. 2009b. Informal learning and identity formation in online social networks. *Learning, Media and Technology* 34(2): 119–40.
- Greenhow, C., E. Robelia, and J. Hughes. 2009. Web 2.0 and classroom research: What path should we take now? *Educational Researcher* 38(4): 246–59.
- Howard, P., A. Duffy, D. Freelon, M. Hussain, W. Mari, and M. Mazaid. 2011. Opening closed regimes: What was the role of social media during the Arab Spring. Working paper, Project on Information Technology and Political Islam.
- Hull, G., and M. E. Nelson. 2005. Locating the semiotic power of multimodality. *Written Communication* 22(2): 224–62.
- Infographics Labs. 2012. Twitter 2012 (blog), February 22. Available at: <http://infographiclabs.com/news/twitter-2012/>.
- Java, A., T. Finin, X. Song, and B. Tseng. 2007. Why we Twitter: Understanding microblogging usage and communities. Paper presented at Web Knowledge Discovery and Data Mining, August 12–15, San Jose, CA.
- Jenkins, H. 1992. *Textual poachers: Television fans and participatory culture*. London: Routledge.
- Johnson, S. 2009. How Twitter will change the way we live. *Time*, June 5.
- Junco, R., C. M. Elavsky, and G. Heiberger. Forthcoming. Putting Twitter to the test: Assessing outcomes for student collaboration, engagement, and success. *British Journal of Educational Technology*. Available at: dl.dropbox.com/u/12947477/publication/2011_Howard-Duffy-Freelon-Hussain-Mari-Mazaid_P1TPI.pdf. DOI:10.1111/j.1467-8535.2012.01284.x
- Junco, R., G. Heiberger, and E. Loken. 2011. The effect of Twitter on college student engagement and grades. *Journal of Computer Assisted Learning* 27(2): 119–32.

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- Kabilan, M. K., N. Ahmad, and M. J. Abidin. 2010. Facebook: An online environment for learning of English in institutions of higher education? *The Internet and Higher Education* 13(4): 179–87.
- Khamis, S., and K. Vaughan. 2011. Cyberactivism in the Egyptian revolution: How civic engagement and citizen journalism tilted the balance. *Arab Media and Society* 13(Summer): 1–36.
- Kolb, D. A. 1984. *Experiential learning: Experience as the source of learning and development*. Englewood Cliffs, NJ: Prentice Hall.
- Kress, G. 2003. *Literacy in the new media age*. New York: Routledge.
- Kuh, G. D. 2009. What student affairs professionals need to know about student engagement. *Journal of College Student Development* 50(6): 683–706.
- Kwak, H., C. Lee, H. Park, and S. Moon. 2010. What is Twitter, a social network or a news media? Paper presented at the International World Wide Web conference, April 26–30, Raleigh, NC.
- Lang, J. M. 2012. Using Twitter to talk about teaching. *The Chronicle of Higher Education* (blog), April 10. Available at: <http://chronicle.com/article/Using-Twitter-to-Talk-About/131442/>.
- Lankshear, C., and M. Knobel. 2006. *New literacies: Everyday practices and classroom learning*, 2nd ed. New York: Open University Press.
- Leander, K. 2008. Toward a connective ethnography of online/offline literacy networks. In *Handbook of research on new literacies*, ed. J. Coiro, M. Knobel, C. Lankshear, and D. Leu, 33–65. New York: Lawrence Erlbaum Associates.
- Lenhart, A. 2012. *Digital divides and bridges: Technology use among youth*. Washington, DC: Pew Research Center. Available at www.pewinternet.org/Presentations/2012/Apr/Digital-Divides-and-Bridges-Technology-Use-Among-Youth.aspx.
- Lenhart, A., S. Arafeh, A. Smith, and A. R. McGill. 2008. *Writing, technology and teens*. Washington, DC: Pew Research Center. Available at: <http://pewresearch.org/pubs/%20-808/writing-technology-and-teens>.
- Lenhart, A., K. Purcell, A. Smith, and K. Zickuhr. 2010. *Social media and young adults*. Washington, DC: Pew Research Center. Available at: www.pewinternet.org/Reports/2010/Social-Media-and-Young-Adults.aspx.
- Lewis, C., and B. Fabos. 2005. Instant messaging, literacies, and social identities. *Reading Research Quarterly* 40(4): 470–501.
- Livingstone, S., E. Van Couvering, and N. Thumim. 2008. Converging traditions of research on media and information literacies: Disciplinary, critical, and methodological issues. In *Handbook of research on new literacies*, ed. J. Coiro, M. Knobel, C. Lankshear, and D. Leu, 103–32. New York: Lawrence Erlbaum Associates.
- Lotan, G., E. Graeff, M. Ananny, D. Gaffney, I. Pearce, and d. boyd. 2011. The revolutions were tweeted: Information flows during the 2011 Tunisian and Egyptian revolutions. *International Journal of Communication* 5: 1375–1405.
- Madden, M. 2012. *Privacy management on social network sites*. Washington, DC: Pew Research Center. Available at: http://pewinternet.org/~/media//Files/Reports/2012/PIP_Privacy_management_on_social_media_sites_022412.pdf.
- Marwick, A., and d. boyd. 2011. I tweet honestly, I tweet passionately: Twitter users, context collapse, and the imagined audience. *New Media and Society* 13(1): 114–33.

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- Mishra, P., and M. J. Koehler. 2006. Technological pedagogical content knowledge: A framework for teacher knowledge. *Teachers College Record* 108(6): 1017–54.
- Moje, E. 2009. A call for new research on new and multi-literacies. *Research in the Teaching of English* 43(4): 348–62.
- Namaan, M., J. Boase, and C. H. Lai. 2010. Is it really about me? Message content in social awareness streams. Paper presented at Computer Supported Collaborative Work 2010, February 6–10, Savannah, GA.
- National Council of Teachers of English. 2007. 21st century literacies. Washington, DC: WETA. Available at: www.adlit.org/article/20832.
- Nielsen. 2011. *State of the media: The social media report*. New York: The Nielsen Company. Available at: <http://blog.nielsen.com/nielsenwire/social/>.
- Partnership for 21st Century Skills. 2008. *21st Century skills, education and competitiveness: A resource and policy guide*. Tucson, AZ: Partnership for 21st Century Skills. Available at: www.p21.org/storage/documents/21st_century_skills_education_and_competitiveness_guide.pdf.
- Pear Analytics. 2009. *Twitter study—August 2009*. San Antonio, TX: Pear Analytics. Available at: www.pearanalytics.com/blog/wp-content/uploads/2010/05/Twitter-Study-August-2009.pdf
- Perkel, D. 2008. Copy and paste literacy? Literacy practices in the production of a MySpace profile. In *Informal learning and digital media: Constructions, contexts, and consequences*, ed. K. Drotner, H. S. Jensen, and K. C. Schroeder, 203–24. Newcastle, UK: Cambridge Scholars Publishing.
- Phillips, A. M. 2012. Tweet, tweet, go the kindergartners. *The New York Times, SchoolBook*, April 2. Available at: www.nytimes.com/schoolbook/2012/04/02/tweet-tweet-go-the-kindergartners.
- Preston, J. 2012. If Twitter is a work necessity. *The New York Times*, February 29. Available at: www.nytimes.com/2012/03/01/education/digital-skills-can-be-quickly-acquired.html?pagewanted=all.
- Rinaldo, S. B., S. Tapp, and D. A. Laverie. 2011. Learning by tweeting: Using Twitter as a pedagogical tool. *Journal of Marketing Education* 33(2): 193–203.
- Smith, A. 2011. *Why Americans use social media*. Washington, DC: Pew Research Center. Available at: www.pewinternet.org/Reports/2011/Why-Americans-Use-Social-Media.aspx.
- Smith, A., and L. Rainie. 2010. *8% of online Americans use Twitter*. Washington, DC: Pew Research Center. Available at: www.pewinternet.org/Reports/2010/Twitter-Update-2010/Findings.aspx.
- Vieweg, S., A. L. Hughes, K. Starbird, and L. Palen. 2010. Microblogging during two natural hazard events: Why Twitter may contribute to situational awareness. Paper presented at ACM CHI Conference on Human Factors in Computing Systems, April 10–15, Atlanta, GA.
- Warschauer, M. 2007. The paradoxical future of digital learning. *Learning Inquiry* 1(1): 41–49.
- West, K. C. 2008. Weblogs and literary response: Socially situated identities and hybrid social languages in English class blogs. *Journal of Adolescent and Adult Literacy* 51(7): 588–98.
- Zappavigna, M. 2011. Ambient affiliation: A linguistic perspective on Twitter. *New Media and Society* 13(5): 788–806.