*Educational Media International*, 2014
Vol. 51, No. 2, 109–123, http://dx.doi.org/10.1080/09523987.2014.924661

Routledge
Taylor & Francis Group

# Using disruptive technologies to make digital connections: stories of media use and digital literacy in secondary classrooms

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(*Received 27 January 2014; accepted 23 March 2014*)

This study focused on ways teachers and students in an urban high school used technologies often labeled as disruptive (i.e. social media and mobile phones) as learning and relationship building tools, inside and outside the classroom. In this teacher research study, secondary teachers discussed digital literacies, the digital divide, and digital teacher–student relationships with their urban high school students. Findings showed that students had difficulties connecting their personal media use (social media and mobile phones) with its usefulness as an educational tool. In response, teachers leveraged teacher–student relationships, the social–emotional bond developed through classroom communication that links the two groups, by connecting with students via social media and other technologies in order to extend learning beyond the classroom. Examples of how and why secondary teachers structured their digital interactions with students may provide a framework for other secondary educators wanting to create or expand their digital classrooms.

**Keywords:** secondary education; social media; mobile phones; teacher–student relationships; digital literacy; digital divide

## Introduction

As a secondary social studies teacher, I often felt as if I were engaged in a technological battle with my students. When I posed questions from their assigned readings in World History class, they would forsake their two-inch thick textbook and instead would turn to their five-ounce mobile phone – a banned classroom device. Schools have employed their institutional power to enclose or regulate technology to specific spaces (Goodson, Knobel, Lankshear, & Mangan, 2002), effectively stripping teachers of the technology they needed to successfully win the battle for students' attention in the classroom. Norris and Soloway (2009) called mobile phones and other Web 2.0 tools "disruptive" technologies (p. 96), but welcomed the disruption as a necessary change to the seemingly antiquated twentieth century pedagogies. While students wanted classroom access to the information that mobile phones, social media, and the internet provided, teachers were expected to teach the same way as our predecessors did a century ago (DeGennaro, 2008).

Alexander Graham Bell High School (pseudonym) had banned mobile phones, laptops, and other mobile internet devices from classrooms, like many secondary

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public schools across the country (Xie, 2013). Despite these rules, some teachers at Bell High decided to ignore the ban on mobile devices in order to equip students with twenty-first century literacy skills, especially wanting students to know how to leverage technology and personal learning networks needed to thrive in our "newly flat world of connected knowledge work, global markets, tele-linked citizens, and blended cultural traditions" (Trilling & Fadel, 2009, p. 15). Working with new technologies, twenty-first century educators are challenged with presenting new skills which include: editing or revising information found online; determining if online information was valid and credible; publishing with varied multimedia tools; researching and storing information online; and effectively collaborating with others (Richardson, 2010, p. 149). These skills have been classified and labeled with many terms from media literacy, digital literacy, multiliteracies, or new literacy studies, but all prepare students for our current new media culture and our increasingly socially networked society (Henderson & Honen, 2008).

This article reports results from a qualitative teacher research study that explored classroom and digital teacher–student interactions at one large, urban high school in order to examine teachers' and students' concerns over digital literacies, the digital divide, and digital teacher–student relationships. The main question that drove the study was, "How do secondary teachers and students utilize disruptive technologies and for what purpose?" Answering this research question revealed ways that teachers and students employed social media, mobile phones, and other technologies to teach essential life skills, including digital literacy, strengthen relationships between teachers and students, and open new digital learning spaces.

## Literature review

### *Disruptive technologies as digital learning tools*

Although mobile phones and Web 2.0 tools (i.e. blogs, wikis, video sharing websites, podcasts, and social media networks) have been labeled as disruptive to the learning process and sometimes banned from schools altogether, many secondary teachers rejected the label and incorporated these digital tools into their classroom lessons because of their students' reliance on the technology. A recent survey by Pew Research Center found that 78% of the teenagers questioned had a mobile phone and nearly half had a smartphone (Madden, Lenhart, Duggan, Cortesi, & Gasser, 2013). The average American high school student spends a lot of time on their mobile phone – watching videos, searching the internet, and for some teens sending over 200 text messages each day (Lenhart, 2012; Nielson Company, 2009). Approximately 73% of American teenagers used social networking sites and school was a regular topic in social media posts (Lenhart, Purcell, Smith, & Zickuhr, 2010; Richardson, 2010).

For teachers, bringing these disruptive technologies into the classroom could be seen as risky since school districts across the country have banned many digital devices (Xie, 2013). Examples of teachers behaving badly on popular social media networks, Facebook and Twitter, illustrate risks of teacher–student interactions via social media (Ewbank, Carter, & Foulger, 2010; Schworm, 2010). Some teachers ignored district regulations and established digital classrooms on these sites citing many benefits of incorporating digital media, including: stronger teacher–student relationships (Carr, 2007; Carter, Foulger, & Ewbank, 2008; DeGennaro, 2008;

Martin, 2006; Schofield & Davidson, 2003; Van Maele & Van Houtte, 2011) and increased student learning, participation, interaction, engagement, reflection, collaboration, and classroom community (Henderson & Honen, 2008; Kist, 2009; Kitsis, 2008, 2010; Levin, 2005; MacBride & Luehmann, 2008; McIntosh, 2009; O'Hear, 2009; Prensky, 2010; Richardson, 2010; Trier, 2007).

### *Relationships, power, and place in the digital classroom*

Ever since the introduction of computers into schools, researchers have shared concerns over technology's influence and control over the classroom (Goodson et al., 2002). Buckingham (2007) observed power struggles between administrators, teachers, students, and parents with the emergence of the internet into the disciplined structure of traditional schools. Schools have attempted *enclosure*, the Foucauldian concept of establishing controllable physical or metaphorical spaces or boundaries, to the role of the internet and other perceived disruptive technologies in schools as they attempt to relegate technology use to libraries, computer labs, or after-school hours (Goodson et al., 2002). Even with new curriculum standards calling for increased technology integration (Ballard, 2010), teachers, parents, and administrators appeared fearful that more technology may erode the hierarchical "top-down power" structure of schools (Gee, 2010, p. 35). This disconnect between students' digital lives outside of school and their experiences in classrooms has eroded students' understanding of how technology applies to learning (Buckingham, 2007; Henderson & Honen, 2008).

The transition from traditional learning environments to digital classrooms often begins with teachers setting up classroom web pages, educational social media sites, or discussion groups on popular online social media networks. Digital classrooms have opened additional access points for students to connect with classroom curriculum by erasing the traditional school time and space boundaries (Levin, 2005; Light, 2011; Trier, 2007). Relationships between teachers and students also changed, as their roles sometimes switched under the influence of emergent technology, an area where students' expertise often outpaced their teachers' (Henderson & Honen, 2008; Richardson, 2010; Sánchez, 2007).

### *The value of teacher–student relationships*

Teachers' interactions and relationships with students form a key component of their identities (Doherty & Mayer, 2003). In the classroom, teachers form a care-filled bond with students, which Noddings (1986) described as an ethical friendship where teachers and students "work together" in order to achieve moral and intellectual growth (p. 509). Beutel (2010) and Van Maele and Van Houtte (2011) found when students shared positive relationships with teachers they were more engaged and successful in the classroom. Trust formed the basis of positive teacher–student relationships (Lumpkin, 2008; Van Maele & Van Houtte, 2011), including technology-mediated relationships (Carr, 2007; DeGennaro, 2008; Doherty & Mayer, 2003; King & LaRocco, 2006; Martin, 2006; Schofield & Davidson, 2003). As teachers employed digital technology as a teaching tool they improved student engagement and formed learning partnerships with students (Doherty & Mayer, 2003; Henderson & Honen, 2008; Mihailidis & Heibert, 2006; Prensky, 2010; Richardson, 2010;

Sánchez, 2007). Social media created digital spaces where teachers and students work together to sustain learning and improve their relationships.

### *From media uses and gratifications to critical media literacy*

The theory of Media Uses and Gratifications was first proposed by Elihu Katz in 1959 to challenge the media researchers of the day to consider "what people do with media" (Dunne, Lawlor, & Rowley, 2010, p. 47), and the needs and expectations fulfilled with different media types (Katz, Blumler, & Gurevitch, 1974). The theory posited five needs or gratifications that media or technology use could fulfill: information seeking, entertainment, status seeking, socializing, and escapism (Grant & O'Donohoe, 2007; Park, Kee, & Valenzuela, 2009). It was also understood that media use was just one way of meeting a person's psychological and social needs (Katz et al., 1974). Current research into this theory analyzes how internet (Zhang & Zhang, 2012), social media (Chen, 2011; Quan-Haase & Young, 2010), and mobile device users (Grant & O'Donohoe, 2007; Le Ferle & Edwards, 2009) sort through the abundance of available applications and how these choices compete for our attention. Within youth culture, researchers have focused on how social media fulfills teenagers' needs to socialize, form, and maintain relationships with others, seek out information, be entertained, escape from everyday life, and create new identities (Dunne et al., 2010; Park et al., 2009). Teens' mobile phone use revealed the gratification of young people's needs of entertainment, socializing, and escapism. Teenagers also use their mobile devices to get advice on school or life issues (Grant & O'Donohoe, 2007). Applying the theory of media uses and gratifications to this study provided a common vocabulary to understand why teachers and students chose certain new media technologies and what they gained from its use as an educational tool.

An essential twenty-first century skill, media literacy, or the necessary skills to "access, analyze, evaluate and create" all types of media (Thoman & Jolls, 2005, p. 190), considers media users as active participants, choosing specific media technologies or communication channels in order to complete particular tasks or to receive certain benefits (Jenkins, 2009; National Association for Media Literacy Education, 2007; Richardson, 2010) just as in the uses and gratifications theory. While today's young people are avid media consumers, it falls to educators, parents, and other adult role models to insure that they become media literate. Schools bear the responsibility to teach students the skills to live in a "networked society" (Jenkins, 2009, p. 51). Of course, teachers must first become media literate themselves before gaining the ability to teach these new literacies (Rogow, 2004), and their acceptance of new media hinged on their beliefs of the value of technology and their comfort level with student-centered pedagogies (Goodson et al., 2002). Mihailidis and Heibert (2006) credited the student-centered pedagogy of media literacy education with creating reflective, empowered citizens – a key goal of education.

## Methodology

This qualitative teacher research study examined teachers' and students' concerns over media and digital literacies, the digital divide, and digital teacher–student relationships. Purposeful sampling was used to select research participants that represented Bell High School's teacher and student population. Teachers known for their

involvement with on-campus student groups were invited to participate through email. Three veteran teachers accepted, all having 15 or more years of experience in the classroom. Convenience sampling was used to recruit seven student members of Key Club, who represented varying age and socioeconomic groups, as well as degrees of familiarity with digital technologies. The teacher-researcher, also a faculty member at Bell High School, interviewed these 10 participants in order to answer the question, "How do secondary teachers and students utilize disruptive technologies and for what purpose?" These participants' answers were recorded, transcribed, and analyzed using open coding, an inductive method of data analysis where close reading of data reveals distinctive ideas to be labeled and coded, to reveal unique or recurring themes (Merriam, 2002; Warren & Karner, 2010). The researcher then returned to the participants' raw interview and focus group transcripts to form re-storied narratives, constructed by restructuring and sometimes reordering participants' words in order to illustrate themes gleaned from this analysis process. These re-storied narratives revealed a picture of how media uses and gratifications applied to digital technology use in secondary classrooms and showed concerns over digital literacy, learning with digital tools, the digital divide, and digital teacher–student relationships.

Considered teacher research, or practitioner research, because of its systematic approach to seeking answers in one's own classroom practice (Brown, 2010; Cochran-Smith & Lytle, 1993; Stringer, 2004), data collection for this study took place within the Bell High School teachers' classrooms and in the digital learning spaces where students and teachers interacted (Cochran-Smith & Lytle, 1993). Qualitative methods allowed the teacher-researcher to interpret the multiple meanings and understandings teachers and students held towards media and provided the researcher a space to explore their own personal questions and feelings towards media (Merriam, 2002; Warren & Karner, 2010). Narrative inquiry was employed as the data collection and reporting method for this study, as it allowed the researcher to seek understanding from teachers' and students' digital or online experiences as communicated through personal interviews and focus groups (Clandinin, 2007; Clandinin & Connelly, 2000; Gay, Mills, & Airasian, 2006). This study both examined the participants' stories and used stories as the primary method of analysis (Clandinin, 2007). These interviews were then transcribed, re-storied, and organized into themed narratives for more in-depth analysis (Clandinin & Connelly, 2000; Gay et al., 2006).

### *Research setting and participants*

Narrative inquiry into teachers' experiences at school should take place in schools, which was why all the data collection for this study took place within the walls of Bell High School and the digital classroom settings that served as the online extensions of the physical classrooms (Clandinin & Connelly, 2000; Clandinin et al., 2006). A large, urban, Midwestern, magnet school, Alexander Graham Bell High School serves 1200 students in grades 9 through 12. Around half the student body was European-American, with another 25% African-American, approximately 10% each Native American and Hispanic-American, and less than 5% claimed Asian descent. Half of Bell High's students were eligible for free or reduced lunch. The narrative data from the seven student participants, all high school juniors or seniors and members of the service organization Key Club, were included in this study.

Narratives from each of the three teacher participants were included as well. Please note that all names are pseudonyms.

### *Data collection and analysis*

Artifacts, such as screen images from classroom websites and student Facebook pages, interviews, and focus groups were also used as data for this study. Beginning with the student focus group, the participants were asked about personal technology use, their online relationships, their understanding of digital literacies, their feelings toward traditional teacher–student relationships, and opinions on building online relationships with teachers. Four of the student participants also completed follow-up interviews to expand on and clarify answers given in the focus group. Individual interviews with the three teacher participants gathered information about educational technology use within the classroom, personal technology use, and classroom and online relationships with students. Each teacher participant then completed a follow-up interview, and two of the three teachers also participated in a focus group where they shared their online classroom practices, as well as ideas of how to utilize disruptive technology.

Open coding revealed 42 unique, recurring themes, and these themes were grouped into three broad categories: how the participants utilized technological tools, the triumphs and challenges of teaching and learning in the current digital age, and the role of relationships and connections for both students and teachers in the classroom and online.

## Findings

One of the main findings from this research study was how students struggled with connecting their personal media use to their experiences with technology within their educational lives. The narratives presented here show how the teachers and students of Bell High School used computers, social media, mobile phones, and other technologies as learning tools, and what gratifications resulted from the use of these technologies. These findings demonstrated the importance the participants placed on digital technology, and its emerging role in the educational lives of teachers and students.

### *Social media*

All of the study participants used one or more online social media sites, Facebook being the one commonality among all of them. Mr Jennings, one of the teacher participants, maintained two separate Facebook accounts to divide his underage students from his adult friends, as was recommended by the school administration and much of the literature on the topic (Alexander, 2011; Patterson & Wilkinson, 2011). He interacted with students and teacher colleagues on “teaching account” and filled his “personal account” with his thoughts on educational policies and politics (Mr Jennings, Interview). Ms Gladstone, the schools’ activities director, used Facebook and Twitter to keep in contact with her students when organizing important events on Bell High School’s calendar, such as homecoming and spirit week. Ms Gladstone easily kept track of these social media accounts with her iPhone and iPad.

Both teachers felt the relationships and connections built with students via social media strengthened their ability to teach students inside the classroom.

Ms Reece, a career technology teacher, rejected the idea of Facebook and Twitter for educational use. Instead she established an account on the educational social media site Edmodo, an online program she described as a "school based Facebook program" (Ms Reece, Interview). Edmodo allowed students to access and complete class assignments online, as well as communicate with the teacher and peers. In the following narrative excerpt, Ms Reece described one of the ways she utilized the educational social media site:

> Recently I assigned my students job interview questions on Edmodo. I told them to imagine yourself sitting across from the person asking you these questions, and that they needed to impress them and communicate their skills in order to get the job that 20 other individuals had applied for. The kids answered the questions online and I took the time to read every answer and respond to them on Edmodo. Sometimes we would go back and forth like that, and they loved it because it was social. It's good for the quiet kids, the ones who would never get up and talk in class, but now they can still communicate with me.

Edmodo offered a private, closed classroom community that allowed students to establish personalized learning environments anytime and anywhere. Evaluating their postings to the social media site, it was clear that students used the site to do homework, but they also communicated with each other, posting messages and announcements about activities inside and outside of school. These online interactions also permitted Ms Reece to teach students the etiquette of job interviewing, to teach "spelling, grammar, [and] punctuation," as well as the ability to tailor messages to reach specific audiences – all skills she deemed necessary for success in the business world (Ms Reese, Interview). While Ms Reece did not mention the twenty-first century or media literacy skills, it was obvious that she felt these skills were necessary for her students' success. Ms Reece's interactions with students matched what Trilling and Fadel (2009) considered important twenty-first century job skills – "problem solving, communication, teamwork, technology use, [and] innovation" (p. 11).

Ms Reece also maintained a personal Facebook account, but she did not let students become her friends on the social media site. Checking in with her family and friends, Ms Reece employed Facebook in many of the same ways students used the site. Every student participant had a Facebook account and four of them also used Twitter. Wynter, a junior at Bell High School, portrayed Facebook as "a way to see what's going on in life" as the teens enjoyed viewing the social media network in order to keep track of others' lives rather than reporting on their own lives (Wynter, Student Focus Group). Rosalyn, also a high school junior, said she only posted "three statuses a year" on Facebook and more often than not wrote greetings on friends' walls or just looked at photos (Rosalyn, Student Focus Group).

Typically students relied on social media to surveil others rather than socializing, even admitting to seeking out their teachers' photos, friends, hobbies, or other intriguing information. When the students were asked their opinions on online social media relationships with teachers, they did not understand why teachers were so concerned about separating their private lives from their professional roles. Gabby, a senior at Bell High, questioned why teachers refused to be friends on social media sites. In her narrative, Gabby asked an amusing, yet old question:

> I think a lot of teachers don't take students as friends on Facebook for privacy reasons. They feel like they're spying on their students, or that we'll "creep" on them, or like what are they going to think of me when they see my Facebook page? I don't know why it's weird. It's like when you see your teachers outside of school, like at the grocery store, it's still a surprise, like "Wow!" They shop? They have a life? They are real people. It's the same thing online, on Facebook.

Francesca, a close friend of Gabby, had been Facebook friends with her female drama teacher for four years. Regularly posting information about class and rehearsals, Francesca felt the teacher's posts were helpful, but in her eyes this teacher was just one of a thousand online friends vying for her attention. This is one reason why Francesca preferred Twitter over Facebook. She liked the microblogging site's ability to search what people were saying about a topic through linked hashtags and its streamlined approach to status updates. Social media networks Instagram, Tumblr, and Pinterest were also favored by the student participants, but none described these sites as educational or discussed any educational uses for these social networks, reiterating the disconnect students seemed to demonstrate with educational and personal use of media.

All three teachers used either educational or popular online social networks in order to extend classroom learning and relationships beyond the school. Ms Reece utilized the educational social media site Edmodo for student assignments. Ms Gladstone and Mr Jennings relied on popular social media sites, such as Facebook and Twitter, as their digital classrooms. Ms Gladstone, the school activities director, relied on Twitter to communicate with students and plan upcoming events. Mr Jennings selected Facebook as his digital classroom space based on input from students and their preferred media use. In the following narrative fragment, Mr Jennings shared some of the ways he employs Facebook as a learning space:

> I set up a Facebook group for my AP Physics class. I figured making it a grade will get more kids to join the group. I check the page pretty much every day, but I started using it more during the big snowstorm. My students needed a portal where we could communicate, so the Facebook page is a place where students can ask me questions about stuff they learned in class. I don't use it to post homework assignments. No, it's more when they are doing their homework and they don't understand how a graph should look. They ask me on Facebook and I post a picture of how it should look. Of course, most of the kids are doing their homework the night before it's due and panicking because they don't know what they're doing. I also post links to interesting internet science articles I find.

Mr Jennings established his digital classroom to support students' learning by providing homework assistance and providing real-world application of course content. This type of digital classroom support promoted student collaboration, reflection, and classroom community (MacBride & Luehmann, 2008; Richardson, 2010). Mr Jennings felt that students participating in the Facebook group were more prepared for course assignments and tests. He also stated that the online interactions improved his relationships with students in the classroom.

Relationships lay at the heart of Ms Gladstone's reasons for branching out into the social media world of Twitter. Describing herself as a digital newcomer, Ms Gladstone had an almost insatiable hunger to learn to use new technology in her educational and personal life – the problem was learning how to use it! Turning to her students for guidance and direction, her narrative features the benefits of digital teacher–student relationships:

> When it comes to technology, I listen to the kids to see what they're doing. If the kids are using Twitter, then I use it to communicate with them. I use it to get messages out and they get real quick responses that way. It's important to understand where they are coming from, what media they use, and then you'll know what media to use inside and outside the classroom. I know it can be useful though, like the retweeting and that hashtag thing. The kids showed me how you can search and everything people tweeted about an event will come up. I couldn't believe it. Twitter is a really good way to get feedback. I'm thinking of using it to do evaluations and planning for school events. And the retweeting is a good way to pass the word to a whole class, even the whole school. A lot of our kids are using this stuff, so we might as well use it.

Prensky (2010) suggested teachers should partner with students to help create classroom lessons and projects. Ms Gladstone did just that, drawing from students, other teachers, and professional development workshops. She also showed her ability to adapt twenty-first century literacies and pedagogies, allowing herself to adapt the role of both the teacher and learner (Henderson & Honen, 2008; Richardson, 2010; Sánchez, 2007).

### *Mobile phones*

All of the social media networks mentioned by the students were typically accessed through their mobile phones, not on computers (Madden et al., 2013). Leading media consumers, teenagers spend hours sending messages, surfing the internet, and watching videos – twice as much time as adults (Madden et al., 2013; Nielsen Company, 2009). Students saw their mobile phones as much more than a communications tool and desired permission to use it as an educational tool. But like many high schools across the nation, Bell High School had banned students from using wireless devices, including cell phones, personal computers, or cameras, at any time during the school day, unless given express permission by the principal. Labeled as disruptive devices, the lack of access to mobile phones, tablets, and laptops created a void in the students' digital experiences, but they envisioned a future where technology could be part of their educational process. In following narrative, Rosalyn expressed her desire to bring Bell High School into the twenty-first century:

> I think the time is coming where schools are going to have to allow students to use their electronic devices. They won't have a choice. I think we need to be freer, more open with technology. I like listening to music when I'm reading or taking notes and we can't do that here. If I'm in class with my phone, I think it's my responsibility to use my time wisely. It's obvious if I'm sitting with my phone texting that I'm not going to be able to finish my work, right? But that's on me. If I could take my iPad to class and write notes on it, then I would always have my notes. I could stay organized. iCloud stores everything that's on your iPhone, iPad, or Macbook. When I take notes on my phone, it'd show up on all three of them. That would be amazing.

Like Rosalyn, Cara, a senior, felt that granting students the rights to their mobile phones would decrease students' desire to text in class. Seeing it as a teacher's prerogative whether or not to allow phones in class, Cara believed that the benefits for students to utilize mobile phones as an educational resource outweighed the risks of disruptions to the educational process.

Hannah, a junior and an avid iPhone fan, had witnessed teachers bending the rules when it came to phones in class. As seen in this narrative selection, Hannah felt that the sheer abundance and ability to access technology should, in some way, dictate its educational use:

> In my statistics class, our teacher lets us use our phones as calculators. I don't see a problem with using them in the halls between classes, at lunch, or using it to play music if we are working quietly in class. I just think teachers need to understand how much phones mean to us and how they can actually be useful instead of just assuming we're texting. I mean, technology is changing.

As a business and technology teacher, Ms Reece had realized students' dependence on their mobile devices and saw her role to teach students to use their mobile devices effectively. In her classroom, students learned to use phones as planners and tools for employer–employee communication, and modeled media literacy skills by requiring students to consider that media messages are constructed and construed by different authors and audiences. This narrative shows her authentic and deliberate way of imparting life and media literacy skills into students' lives:

> I encourage students to use their phones in my class. I've been to different professional developments where they say banning phones just makes students want to use them more. So I've set aside the first five minutes of class for phone time, you know, before we get down to business. We use them in class to communicate. I have students add events and deadlines to their phone calendars, and I give every student my cell phone number. Now they're not allowed to call me though – they know to text me! School is like a job. You just can't decide not to go to work and not call in! You will lose your job that way. It's the same way with my class. If I miss class I let them know via text, tell them their assignment, and my expectations. That's one way I build rapport. I expect the same thing from them.

While not typical, Ms Reece's approach allowed her to connect with students and know what was happening in their home lives, allowing her relationships with students to be the vehicle for imparting content knowledge and media literacy skills.

### *Concerns over the digital divide*

Referring to the apparent gap between those with access to digital technology and those without it caused by socioeconomic, ethnic, cultural, or geographic differences, the digital divide has plagued educators interested in digital learning (Goodson et al., 2002; Pew Internet Research and American Life Project, 2011). All schools, especially those serving students from lower socioeconomic backgrounds, should combat the digital divide with media literacy education (Henderson & Honen, 2008). The teacher participants in this research study were deeply concerned over students' access to technology and saw clearly visible differences within the student population at Bell High School. Strangely, the student participants did not notice this phenomenon, but saw the general lack of technology within the school as a disadvantage for all of Bell's students. In this narrative excerpt, Mr Jennings shared his thoughts on education's role in closing the digital divide:

> We still have a few students who don't have a computer at home, and I think it's the school's job to teach kids how to use computer technology. I know many of them don't have access to the technology because of money, or their parents don't have a job, or whatever – but all that really doesn't matter. When they go to college or get a job they're gonna have to compete with students who know how to use the technology. If you don't keep up with the technology, you will be left behind. You have to keep up with the changing technology – adapt or die.

Mr Jennings wanted equity and opportunity for all students. Jenkins (2009) also stated it was the schools' responsibility to equip students with the skills necessary to

live in a democratic, participatory culture and to combat the digital divide with critical digital literacy.

While student participants did not comment on other students' lack of technology, they thought that the school blocked access to helpful technologies. Rosalyn thought the ban on cell phones was bad enough, but couldn't understand why she could not use an "iPad or something in class … to be able to take notes" (Rosalyn, Student Focus Group). Grant, a junior at Bell High, agreed with Rosalyn because he wanted to take class notes with his phone – a device he could easily keep up with – instead of using paper, which he frequently lost. Wynter questioned why a school focused on college preparation courses did not model the college practice of embracing technology. Clearly the students advocated for media use, but have schools done enough to teach students how to use technology effectively in their personal and educational lives? Digital literacy and twenty-first century skills call on educators to not simply include digital technology, but teach students to think about its role in their educational and personal lives.

## Discussion and implications

The main question behind this qualitative teacher research study was "How do secondary teachers and students utilize disruptive technologies and for what purpose?" The findings in this article demonstrated how teachers in an urban high school employed mobile phones and different social media sites to build relationships, extend classroom learning online, tackle the digital divide, and to teach twenty-first century literacies and other life skills. Teachers intentionally sought out relevant technologies that would engage students inside and outside the classroom. This study also included students' thoughts and voices on these topics, but often the students' voices did not connect with the teachers' voices. Both groups wanted increased technology acceptance in the high school classroom. One teacher participant, Ms Reece, went as far as rejecting the school rules regarding mobile phones and encouraged students to use these disruptive devices as calendars or planners and business communication tools. Ms Reece advocated for digital literacy education as opposed to denying students their disruptive devices.

As the teachers attempted to utilize social media to teach twenty-first century literacies and extend classroom learning beyond the walls of the schools, students engaged in social media for personal, not educational use. For example, Francesca preferred Twitter over Facebook because it fulfilled more of her social needs to surveil her friends. On the other hand, Ms Gladstone used Twitter to connect with students and post information about school events. Both used the same social media network, but each for different purposes. Teachers daily witnessed these disconnections and responded by using their connections with students – the teacher–student relationship – to communicate content and digital literacy skills.

Research into media uses and gratifications revealed that one of the main reasons teenagers used disruptive devices was to escape from school (Dunne et al., 2010; Park et al., 2009). This directly conflicted with teachers' desire to integrate social media networks and mobile phones into school curriculum. This could explain why all three teachers cited the teacher–student relationship – the social–emotional bond that connected the two groups – as the driving force for their endeavors to connect with students through technology. The role of the teacher–student relationship in both teachers' and students' decisions to engage online was an unexpected research

finding. While the idea that social media met one's socializing needs was not shocking, finding that educational social media interactions did come as a surprise. This information could help teachers build stronger online classroom communities in the future, and should be considered before school districts or lawmakers make policy decisions regarding teacher–student interactions in digital spaces. Denying teachers and students access and interaction through social media networks would negate teachers' goals for increased learning inside and outside the classroom.

The teacher–student relationship also shaped how teachers approached the digital divide and digital literacy education. Mr Jennings pleaded his case for increased technology and the schools' responsibility to equally prepare economically disadvantaged students with the technology and media literacy skills necessary to compete in the future. Even Cara, who could be classified as upper middle class at Bell High, wondered why the school did not provide laptops for students like some of the other private and charter schools in the area. While the connection between a school's level of achievement and the socioeconomic status of its students has been documented (Filardo, Vincent, Sung, & Stein, 2006), educational policy-makers continue to ignore it as the digital divide widens and reproduces the same cycle of social inequities. Jenkins (2009) warned that this widening gap prevented many from participating in the collaborative, democratic culture of new media – technology that could be the very vehicle capable of giving voice to their plight and concerns. This also reiterated how power and social equity issues were inherently tied to digital literacy, funding, and educational policies.

As many schools consider the role of social media in the educational landscape, this teacher research study provides a portrait of the ways teachers can use these interactive websites and applications to extend classroom learning beyond the time and space boundaries of the traditional school setting. As computing and social media policies are written for individual schools and districts, research studies like this one aid policy-makers in understanding the role technology plays in classroom learning, the teacher–student relationship, and combatting the growing digital divide. Increasing opportunities for teachers and students to interact and engage in digital learning spaces prepare our students for growing demands of the twenty-first century workforce.

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