

How and Why Educators Use Twitter: A Survey of the Field

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Abstract

While the microblogging service Twitter is increasingly popular among educators and offers numerous affordances for learning, its relationship with formal education systems remains complicated by generally ambivalent educator attitudes and institutional policies. To better understand the role Twitter plays in education, we conducted a survey of 755 K–16 educators that yielded quantitative and qualitative data concerning how and why the medium is used. Respondents reported intense and multifaceted utilization of the service, with professional development (PD) uses more common than interactions with students or families. Educators valued Twitter's personalized, immediate nature, and the positive and collaborative community it facilitated. Many cited Twitter's role in combating various types of isolation and described it as superior to traditional professional development. We finish by discussing implications for educators, researchers, and educational institutions. (Keywords: Twitter, microblogging, education, social media, professional development)

The emergence of Web 2.0 sites and social media services over the past decade has dramatically affected the way people communicate and interact across various domains. While there is evidence that social media use in education has increased (e.g., Ahrenfelt, 2013; Lee, Shelton, Walker, Caswell, & Jensen, 2012; Lu, 2011), the relationship between the field and these new tools is often muddled and contradictory. Some schools block social media sites for students, others have embraced these technologies in imaginative ways, and many remain ambivalent. We sought to further understand the role of social media in education by examining how and why educators use the popular microblogging service Twitter.

Twitter as a Medium

As of July 2013, there were approximately 200 million users of Twitter (Twitter, Inc., n.d.), including approximately 18% of online adults in the United States (Duggan & Smith, 2013). Twitter was originally fashioned to allow users to send “small bursts of information,” known as “tweets,” about daily events to other users of the service (Twitter, Inc., n.d.). In addition to text, tweets can include images and hyperlinks that deliver additional content within and beyond the medium. The service can be accessed from personal computers, as well as various mobile device applications. Many users have adapted Twitter to suit their own purposes (Van Dijck, 2011), moving beyond simply answering Twitter’s original prompt of “What are you doing?”

Although dismissed by some as the realm of callow teens, narcissists, and celebrity stalkers, social media, including Twitter, have impacted the world in unpredictable ways. Social media played an important role in the Arab Spring revolutions of 2011, recent protests in Turkey, and many other worldwide events. Various scholars have noted that Web 2.0 sites such as Twitter afford users numerous benefits, and Jenkins and colleagues (2009) went as far as to say that the “new participatory cultures” afforded by such sites may “represent ideal learning environments” (p. 10). These tools reduce spatial and temporal constraints on communication and allow users to collaborate around topics of interest. The “affinity spaces” facilitated by such media encourage sharing and peer-to-peer learning that enable participants to benefit from collective intelligence (Gee, 2004). Junco and colleagues (2011) have argued that Twitter in particular may be the “social networking platform most amenable to ongoing, public dialogue” (p. 1). Its brevity, immediacy, and openness can empower educators and students to interact with a variety of people in new ways. Given Twitter’s popularity, adaptability, and capacity to create unique opportunities for communication, it seems worthwhile to examine its role in education.

Soon after Twitter’s 2006 founding, K–16 educators began to explore its educational applications and the education press and various blogs have regularly reported on its usage ever since (e.g., Brown, 2012; Sample, 2010; Young, 2009). Twitter proponents list a number of educational benefits, such as enhanced communication, collaboration, and engagement (Lu, 2011). Our firsthand use of Twitter, practitioner-oriented articles, and empirical research suggest three primary uses of Twitter in education: communication, class activities, and professional development (PD). Hashtags, designated when the “#” symbol is located before a subject or keyword, can be key to all three of these uses. Educational hashtags are utilized for various purposes and are generally determined organically by users. For example, a high school Advanced Placement (AP) biology teacher might use a hashtag (e.g., #APBio101) to create a virtual space for interaction with students, while an administrator might promote a school-wide hashtag (e.g., #WestmooreHS) to share information about school events.

Educators also engage in professional development with colleagues by using popular hashtags related to subject area (e.g., #mathchat), or position (e.g., #cpchat for “connected” principals), among other factors. Such hashtags are used to share ideas, resources, and encouragement, and connect with other educators. Synchronous 1-hour Twitter chats with a moderator and based around a hashtag are also popular among tweeting educators (Brown, 2012; Carpenter & Krutka, 2014; Wesely, 2013).

Review of Literature

The literature on Twitter’s application in education describes a wide variety of uses by teachers of first graders (e.g., Kurtz, 2009) to graduate students (e.g., Domizi, 2013) and every level in between. To date, however, there is generally more research concerning the use of Twitter in higher education than at the K–12 level. For example, although there are no published data on rates of Twitter usage among K–12 educators, Seaman and Tinti-Kane (2013) have reported the results of a survey detailing use by higher education faculty. However, while the contexts of higher education involve unique opportunities and challenges, research on Twitter at this level may provide insights relevant to K–12 educators. In the following, we review literature concerning three general ways that Twitter can be utilized educationally: communication, classroom activities, and professional development (PD).

Communication

Before Twitter’s advent, research on computer-mediated communication indicated that technology can facilitate new opportunities for communication (e.g., Dubrovsky, Kiesler & Sethna, 1991). While there is limited research concerning Twitter’s use for communication in education, a number of practitioner-oriented articles detail such activity. Microblogging can be used for one-way sharing from an official school account to keep a school community informed of events, deadlines, or policy changes (e.g., Porterfield & Carnes, 2011). Kurtz (2009) utilized Twitter to share the work of his first and second graders, thus providing parents “windows into their children’s days” (p. 2). Twitter can also provide many-to-many communication among administrators, teachers, students, and other stakeholders through the use of a common hashtag or interactions between accounts (e.g., Ferriter, Ramsden, & Sheninger, 2012).

In higher education settings, microblogging has demonstrated the capacity to facilitate greater communication between instructors and students (Dunlap & Lowenthal, 2009). For example, Domizi’s (2013) coding of tweets found not only that students in her graduate course benefited from her reminders about class assignments and deadlines, but also that Twitter helped students communicate with each other professionally and socially, even providing each other encouragement. Chen and Chen (2012) reported that Twitter facilitated communication between university students who were otherwise too inhibited to speak directly to the instructor. Badge and colleagues (2012) used Social

Network Analysis software to analyze the usage of Twitter by two university student cohorts from biological sciences ($n = 7$) and museum studies ($n = 8$) programs; in one case, Twitter facilitated student–student communication, and in the other case student–instructor communication. In some situations, Twitter may not be the appropriate communication mechanism, as Hodges’s (2010) study concluded that his university’s use of Twitter as a one-way tool to convey information about a mathematics laboratory was ineffective.

Class Activities

Twitter can be used for a variety of synchronous and asynchronous activities inside and outside of official class time (Sample, 2010). Microblogging has been studied in a wide variety of content areas, including communications, health studies, history, media studies, medicine, research methodologies, and world languages. The literature has documented a diverse array of in-class activities, including backchanneling (Elavsky, Mislán, & Elavsky, 2012), sharing resources (Matteson, 2010), historical perspective-taking and reenactment (Krutka & Milton, 2013; Lee et al., 2012), and even as a source for, and subject of, media study (Rinaldo et al., 2011). Domizi (2013), Krutka (2014), and Wright (2010) required students in single university-level classes to regularly tweet, but provided students a degree of freedom in determining the topics of their posts. For example, thematic content analysis of 529 tweets and a follow-up focus group with eight students in a graduate teacher education course indicated that “participants valued regular contact within this community, mitigating their feelings of isolation” (Wright, 2010, p. 263). Twitter may therefore have extra value for university students in classes that meet less frequently than is often the case in K–12 settings.

University-level students in a number of studies have cited Twitter for increasing involvement in and satisfaction with courses (e.g., Krutka, 2014; Rinaldo, Tapp, & Laverie, 2011). For example, after surveying marketing students in several classes over two semesters, analyzing instructor tweets, and conducting focus groups, Rinaldo and colleagues concluded that Twitter has the “potential to engage students with the emerging technology, increase the interaction between professor and students and broaden access to information related to course material” (p. 202). In another study, Krutka and his 20 preservice social studies teachers both used and studied pedagogical possibilities for social media use in middle and high school classrooms (Krutka, 2014). Surveys, reflective journals, and field notes indicated that Twitter was the most beneficial of several social media services utilized in the class because of its diverse uses. Class participants indicated that the use of social media fostered a community feeling and enhanced students’ relationships with the instructor, each other, and practicing educators who used Twitter.

Twitter has been credited in different studies conducted at the university level with stimulating engagement and raising grades (Junco et al., 2011), increasing willingness of students to share lack of comprehension with

instructors (Chen & Chen, 2012), boosting collaborative learning and self-confidence among introverted students (Voorn & Kommers, 2013), and encouraging informal learning outside the classroom (Dunlap & Lowenthal, 2010; Kassens-Noor, 2012). Research suggests Twitter has the potential to encourage concise writing (e.g., Dunlap & Lowenthal, 2009), and Kurtz (2009) further found that his elementary students were excited to co-construct tweets and analyze language appropriate for the authentic audience of their family members.

Backchanneling via Twitter is an activity that allows students to maintain a dialogue or ask questions about a lecture, movie, or activity that is happening concurrently. Elavsky and colleagues (2011) found that a majority of college students in their introductory Communications course ($N = 300$) voluntarily contributed to a Twitter backchannel during class sessions, and this activity deepened engagement with course themes. However, while this type of online conversation can have a democratizing effect by bringing students' voices to the fore, Young (2009) noted that not all educators are ready to embrace such a change in power dynamics.

The extant research also suggests Twitter can be utilized outside of class in many ways; students or teachers can share ideas and resources, ask questions, or submit responses to prompts. According to Ebner and colleagues' (2010) analysis of graduate students' ($N = 34$) posts and survey results, microblogging as a part of a Supply Chain Management course was an effective means to encourage informal learning related to course content. Wright (2010) found Twitter effective for sharing brief, out-of-class reflections with peers. However, according to two other studies, Twitter may not be ideal for encouraging reflective thinking due to its format (Ebner et al., 2010; Kassens-Noor, 2012). Although Twitter can sometimes increase peer-to-peer interactions, several researchers found it did not inevitably do so (e.g., Chen & Chen, 2012; Junco, Elavsky, & Heiberger, 2012); educators may have to either directly or indirectly encourage such interactions. Lowe and Laffey (2011) indicated that they needed to integrate their university students' ($N = 123$) outside-of-class Twitter activity into class discussions in order to maximize the effectiveness of the tool.

Professional Development

High-quality professional development (PD) has proven the capacity to affect teachers' practices and students' learning (Borko, 2004), but the literature consistently suggests such PD is rare (Hawley & Valli, 2007; Sprinthall, Reiman, & Thies-Sprinthall, 1996). Also, there are few signs of PD's systematic improvement in the United States (Wei, Darling-Hammond, Andree, Richardson, & Orphanos, 2009). Given the common dissatisfaction with traditional approaches, interest in new methods of PD is keen. Online PD can theoretically provide increased flexibility and personalization for teachers (Vrasidas & Zembyas, 2004). Twitter potentially offers PD opportunities that

differ from traditional approaches because it is immediate, is personalized, and can draw on networks that are less restricted by time and place.

Twitter appears able to facilitate educators' professional development in a number of ways. Through synchronous chats or asynchronous tweeting, educators contribute and discuss ideas, as well as sharing and acquiring resources by tweeting links to education-related articles, blogs, wikis, and other websites (Brown, 2012; Lu, 2011). A handful of studies suggest that Twitter can function as a professional development tool for teachers. Microblogging can offer educators grass-roots professional development that boosts networking and fulfills a "bridging function" as teachers use it "as a way of importing new ideas into their local communities of practice from distant peers" (Forte, Humphreys, & Park, 2012, p. 106). Risser (2013) reported on one first-year high school mathematics teacher's use of Twitter to successfully establish an informal mentoring network composed of teachers from various backgrounds to support her early career development. Focusing on nine K–12 world language teachers, Wesely (2013) described how Twitter was the genesis of a community of practice that supported "sustained and significant teacher learning" (p. 305).

Research on Twitter use for communication, class activities, and PD has reported a number of positive findings, but obstacles and challenges have also been identified. Student and teacher perceptions of the medium can limit its educational promise. For example, in one study some university students already using other social media were hesitant to embrace yet another tool because of a sense of social network fatigue (Rinaldo et al., 2011). Several studies have found that some students may initially doubt Twitter's educational potential (Carpenter, 2014; Ebner et al., 2010; Krutka, 2014; Rinaldo et al., 2011), and educators are also sometimes skeptical regarding its merits (e.g., Chamberlin & Lehmann, 2011). Seaman and Tinti-Kane's (2013) survey of higher education instructors indicated that many are wary of social media generally because of concerns regarding privacy and academic integrity. Two social studies preservice teachers in Krutka's study expressed concerns about the publicness and always-on nature of social media. However, a number of the specific challenges described here were identified in studies in which these issues were addressed or overcome so as not to render Twitter use pedagogically unsound (e.g., Carpenter, 2014; Krutka, 2014; Rinaldo et al., 2011).

While there have been various pieces exploring, advocating, or critiquing specific functions or applications of Twitter in education, broader description of educators' uses of the medium is lacking. The perspectives and experiences of K–12 teachers and administrators are also underrepresented in the literature. Given the need for more research that examines the educational role of social media generally, and Twitter in particular, this study addresses the following research question: How and why do educators use Twitter?

Methods

We designed an online survey to collect both qualitative and quantitative data about educators' (e.g., K–12 teachers, administrators, teacher educators) uses of Twitter. Our own experiences with Twitter and existing literature on the use of the Twitter and social media by educators informed our initial survey draft. For example, Hur and Brush's (2009) research suggesting that teachers voluntarily participate in online communities to share emotions, combat teacher isolation, experience camaraderie, explore ideas, and take advantage of the affordances of online environments led to the inclusion of these elements in the survey. We then sought feedback on the draft from four educators known to us because of their roles as active Twitter users. Based on their responses, minor refinements were made. The final survey had three parts: an informed consent section, a demographic section, and 10 items eliciting Twitter usage information. Eight survey items involved selecting options from a drop-down menu or checking boxes where appropriate. One item asked participants to list any chats in which they regularly participated, and one open-ended prompt asked respondents to "Please explain what aspects of Twitter you find most valuable, and why" (see Appendix). We hope our results convey a sense of how and why educators utilize Twitter, but our survey is neither random nor generalizable. However, the breadth of the survey should provide valuable insights from a large number of educators. We therefore present our results so fellow educators and researchers might further interpret findings in light of their experiences, research, and situations.

Soliciting Respondents

During 40 days in spring of 2013, we disseminated our survey by tweeting an invitation and link to it. Our sample is one of convenience; a random sample of educators who use Twitter would be quite difficult to amass because of the voluntary and expansive nature of participation. In addition to directly inviting responses from our approximately 1,500 combined followers (who were overwhelmingly educators), we encouraged others to retweet the survey. In our tweets, we included a variety of education-related hashtags based on a list compiled by Blumengarten (n.d.). Furthermore, we included hashtags organized around national- and state-level education conferences. The survey invitation was distributed systematically at different times of the day throughout the week so it would be visible to a broad range of educators beyond just our followers. Invitations were also posted to other online collaboration spaces for educators, including social networks associated with Social Studies and English. We asked various Twitter chat moderators and other educators who are prominent on Twitter to share the survey, and also posted the invitation ourselves during various chats. We closed the survey after 40 days when the rate of responses slowed.

Sample

In total, 755 K–16 educators completed the survey. Ours is a nonrandom sample; we do not make claims that it represents all educators using Twitter. Because there are no statistics available on the overall profile of educators using Twitter, it is impossible to determine how representative our sample is of that population. The sample was approximately two-thirds women and 92% White. Eighty-six percent of respondents resided in the United States, with Canada (6%), the United Kingdom (2%), and Australia (2%) most represented among the other 24 countries. In terms of job position, teachers (55%) and administrators (16%) combined made up the more than two-thirds of respondents, and 25% identified as elementary school teachers. Teacher educators (10%) and librarian/media specialists (5%) were also well represented in the sample.

In terms of content area, the largest percentages of respondents identified themselves with Social Studies, English, Math, or Science, with many respondents selecting Social Studies (40%) and/or English (31%). Part of this overrepresentation of the humanities was due to the apparent success of a survey invitation distributed to users of the Social Studies Ning, an online professional community. Shortly after the message went out to the Ning users, responses from educators who identified with Social Studies noticeably spiked.

In some cases, the sample did not match up with general trends in Twitter usage. In the United States, Twitter is most commonly used by those under 30 (Duggan & Smith, 2013), but this trend was not reflected in our sample. Seventy percent of our respondents were in their 30s and 40s, with smaller percentages at the younger and older extremes (see Table 1). Also, our sample reported a high degree of social media activity in general, with 84% using Facebook, 59% on Pinterest, 43% using LinkedIn, and 33% on Instagram—all higher than average usage rates among the general adult population in the United States. Our sample seemed quite professionally active, indicating participation in 5.8 different types of professional development. This included more traditional PD as well as relatively newer forms of professional development such as professional learning communities (67%) and Edcamps (40%), a voluntary, nontraditional type of participant-driven “unconference.”

Table 1. Age (Years) of Respondents ($N = 755$)

Age	Percentage of Sample
18–22	1%
23–30	15%
31–40	38%
41–50	32%
51–60	12%
61 or above	2%

Data Analysis

Data were analyzed using SPSS Version 21. Descriptive statistics provided data critical to comprehending general trends among respondents and analysis of chi-square cross tabulations were used to investigate relationships between the characteristics of educators and how they used Twitter. Qualitative data from open-ended questions were initially coded and analytic memos written before we moved on to more focused coding as data were compared and categories refined (Charmaz, 2006). We frequently discussed emerging themes and developed a tentative set of salient codes. After confirming our final coding structure, we reread and coded the data again.

Results

While K–16 educators employed Twitter in diverse ways, a number of themes emerged from our data that can help better understand trends in how and why they used the service. Findings indicate that respondents typically use the service frequently, with professional development (PD), particularly acquiring/sharing resources and connecting with digital colleagues, the most popular use. Educators prized the medium for its personalized and immediate nature, and many considered Twitter to be superior to traditional professional development. They valued the types of interactions and community afforded by the service, and many cited Twitter’s role in combating isolation and connecting them with positive, creative colleagues and leaders.

How Educators Used Twitter

We found that educators who used Twitter professionally sought out those with similar interests frequently and enthusiastically. A combined 84% of respondents reported use daily or multiple times per day (see Table 2), and this often included connecting with colleagues around topics of interest via a wide variety of hashtags. Overall, respondents indicated use of 228 different hashtags, with individuals reporting regular use of 2.7 hashtags on average to connect with peers. Just over two-thirds of respondents reported consistent use of the #edchat hashtag, the most popular hashtag (see Table 3).

The level of experience on Twitter among participants varied widely, with the largest number using Twitter for 1–2 years (see Table 4). It appeared that many respondents used Twitter for nonprofessional purposes before beginning to use it professionally. Both older, $\chi^2(4, N = 755) = 78.54, p < .001$,

Table 2. Frequency of Twitter Use ($N = 755$)

Frequency of Use	Percentage of Sample
Multiple times per day	49%
Daily	35%
Weekly	11%
Monthly	1%
Frequency of use varies	4%

Table 3. Respondents' Self-Report of Regularly Used Hashtags ($N = 755$)

Hashtag	Percentage of Sample
#edchat (General education topics)	68%
#sschat (Social Studies-related)	25%
#21stedchat (21st-century skills-related)	15%
#engchat (English/Language Arts-related)	13%
#satchat (generalist Saturday morning live chat)	13%
#elemchat (Elementary-related)	11%
#CCSS (Common Core State Standards-related)	11%
#mathchat	10%

Table 4. Length of Time Using Twitter ($N = 755$)

Time Period	Using Twitter	Using Twitter for Professional Purposes
Less than 6 months	14%	23%
Less than 1 year	15%	23%
Less than 2 years	28%	25%
Less than 3 years	17%	14%
3 Years or more	25%	16%

and more experienced, $\chi^2(4, N = 755) = 101.10, p < .001$, respondents indicated that they had been using Twitter longer for professional purposes. Educators were essentially split between using Twitter both personally and professionally (49%) or exclusively for professional purposes (50%). Males tended to have been on the service longer, $\chi^2(4, N = 755) = 15.97, p < .01$, and used it more frequently, $\chi^2(4, N = 755) = 20.30, p < .001$.

Professional use was multifaceted, as respondents reported employing Twitter for an average of 4.7 different purposes. As shown in Table 5, the most popular uses related to professional development, including resource sharing and/or acquiring (96%), collaboration with other educators (86%), networking (79%), and participation in Twitter chats (73%). Other uses were less common, including communication with students (23%)

Table 5. Responses to: For What Professional Purposes Do You Use Twitter? (Select All That Apply) ($N = 755$)

Professional Purpose	Percent Indicating Use of Twitter for Given Purpose
Resource sharing/acquiring	96%
Collaboration with other educators	86%
Networking	79%
Participate in Twitter chats	73%
Backchanneling	30%
Emotional support	25%
Communication with students	23%
Communication with parents	18%
In-class activities for students	17%
Out-of-class activities for students	16%

Table 6. Professional Purposes for Twitter Use and Selected Chi-Square Values

Professional Purpose	Length of Time Using Twitter $\chi^2(4, N = 755)$	Frequency of Twitter Use $\chi^2(4, N = 755)$
Resource sharing/acquiring	4.14	5.88
Collaboration with other educators	10.34*	14.67**
Networking	24.78***	33.99***
Participate in Twitter chats	21.24***	36.49***
Backchanneling	77.39***	16.19**
Emotional support	11.95*	16.80**
Communication with students	10.22*	14.32**
Communication with parents	7.30	16.18**
In-class activities for students	13.57**	20.80***
Out-of-class activities for students	16.05**	11.39*

Note. * $p < .05$. ** $p < .01$. *** $p < .001$.

and parents (18%), and in-class (17%) and out-of-class (16%) activities. Data therefore indicates that among the three posited uses of Twitter by educators—PD, communication, and class activities—PD was by far the most popular with our sample.

Our sample utilized Twitter for multiple purposes and did so in different ways. As the chi-square scores in Table 6 show, those who had utilized Twitter longer were significantly more likely to use it for networking, collaborating with colleagues, participating in Twitter chats, backchanneling, emotional support, communication with students, and in- and out-of-class activities (see Table 4). Analysis also revealed that more frequent users were also significantly more likely to utilize the medium for several different purposes.

Professional development. Respondents described a number of ways in which Twitter facilitated their professional learning. Ninety-six respondents, or 13% of the total sample, explicitly commented on how Twitter facilitated their learning through their connections to other educators. One teacher explained that Twitter “expands the faculty room,” and an instructional technologist mentioned that it had created “professional contacts beyond what I ever could have made face-to-face.” These connections reportedly created access to ideas and resources that the respondents would not have otherwise found, or at least not in as efficient a manner. Narrative comments mentioned the different content respondents found via Twitter, particularly articles (28 comments) and blogs (23 comments). Eighteen comments related to how ideas or resources found via Twitter contributed to lessons or lesson plans. For example, a social studies teacher referenced “using Twitter to crowd source units or lessons and share resources for use in class.” Synchronous chats were frequently mentioned as the source of content sharing and connecting. One teacher explained that chats “combine the elements of resource sharing, networking, and emotional support.”

Communication and class activities. As previously noted, far fewer teachers reported using Twitter for communication and class activities than for professional development. One possible explanation for this more limited use of

Twitter may be that almost half of respondents indicated that policies prohibited school-related use of Twitter by students. Among respondents working in school districts ($n = 685$), 34% indicated that their district blocked the site for students only, 15% blocked both students and teachers, and 39% allowed access to the service for both groups. Two respondents directly commented upon how policies prevented them from using Twitter with students, with one saying, “Since it is blocked for students in my district, I primarily use it for PD.”

Only three respondents’ narrative comments alluded to Twitter’s most valuable aspect being the ability to communicate with parents and students; these respondents all referenced having students tweet what they were working on at school to parents and others. Male educators were more likely to use Twitter for communication with families, $\chi^2(4, N = 755) = 14.83, p < .001$, and students, $\chi^2(4, N = 755) = 15.06, p < .001$. Elementary educators were significantly less likely to use Twitter to communicate with students, $\chi^2(4, N = 755) = 23.578, p < .001$, or for out-of-class activities, $\chi^2(4, N = 755) = 8.88, p < .003$.

Among the respondents who commented upon employing Twitter for teaching and learning activities, four uses were mentioned. First, teachers most commonly described using Twitter to extend student–student and/or student–teacher conversations. For example, Twitter facilitated out-of-class review sessions and book discussion groups. Second, teachers mentioned using Twitter for in-class activities, such as formative assessments or students tweeting from the perspective of historical or literary figures. English teachers were significantly more likely to report use for in-class activities, $\chi^2(4, N = 755) = 4.86, p < .03$. Third, five teachers described how they used Twitter to connect their students to people outside their school, including peers as well as experts. An elementary teacher shared, “We’ve also talked to several authors on Twitter too!” Finally, a handful of teachers alluded to using Twitter to teach about appropriate and effective social media use.

Respondents who reported using Twitter for one type of communication or classroom activity were more likely to utilize it for multiple communication or class activity purposes. For example, those who used Twitter for communication with students were more likely to also do so for communication with families, $\chi^2(4, N = 755) = 138.67, p < .001$, as well as for in-class, $\chi^2(4, N = 755) = 138.22, p < .001$, and out-of-class activities, $\chi^2(4, N = 755) = 196.66, p < .001$. Those who used the service for communication with parents were similarly more likely to use for both in-class, $\chi^2(4, N = 755) = 44.85, p < .001$, and out-of-class activities, $\chi^2(4, N = 755) = 43.09, p < .001$. Educators who employed Twitter in-class were more likely to use it for out-of-class activities, $\chi^2(4, N = 755) = 245.18, p < .001$. Thus, those who utilized Twitter for more than just PD tended to use it in more than just one additional way.

Why Educators Used Twitter

The educators who completed our survey indicated that they used Twitter because of its affordances and/or the relationships and cultures that developed around using the medium. Respondents praised Twitter for its efficiency and accessibility, describing it as “real-time,” “on-demand,” and providing “instant access,” “any time of day, any day of week.” An elementary teacher explained, “It’s 24-7 PD which I can do from home, school, public transport—anywhere!” The interactivity allowed by Twitter also appeared to be important to a number of respondents. For example, an instructional coach said that she liked how Twitter allowed her to “question and react to people and ideas.”

Many respondents appreciated the differentiation and personalization afforded by professional development on Twitter. While traditional PD often takes a one-size-fits-all approach, a science teacher explained that with Twitter, “I can differentiate my own PD when school and district PD seems to be tailored for the lowest common denominator.” Other respondents stated that Twitter enabled the “most personalized form of PD I have ever had” and “PD on my terms!” Several respondents were excited about Twitter PD and many compared it favorably to other sources of professional development. For example, one teacher commented that Twitter was “far superior, with respect to improving as a professional, to school and district ‘traditional’ PD offerings.” Eight explicitly said Twitter PD was the best they had experienced in their careers, making comments such as:

It is the best professional development I have ever had! (School librarian)

It has completely changed my outlook and knowledge base like no other medium I have encountered. (Principal)

I have gotten more useful professional development in the past year of using Twitter than I have in the entire previous decade of district-provided PD. (English teacher)

Finally, five teachers also compared Twitter’s negligible cost to the expense of traditional PD; Twitter is essentially free for educators with access to smartphones, tablets, and/or computers.

In narrative comments, many respondents noted the sense of connectedness or community provided through Twitter. One middle school English teacher commented that “I have learned so much from other teachers, it has transformed my teaching, and this is my 18th year.” A humanities teacher explained, “I have met my close collaborators on Twitter, and they have now become my closest friends.” In all, 38 respondents directly addressed how Twitter is an antidote to isolation. Comments included generalizations, such

as “It breaks down the isolation that has been traditionally part of teaching,” as well as specific explanations of types of isolation it combats.

Eight respondents who teach in rural and/or small districts commented that Twitter helped them overcome isolation, while nine others shared how the service enabled them to escape philosophical or methodological isolation within their schools. For example, one math teacher explained, “As the only teacher in my district who is flipping the classroom, Twitter is an invaluable source for working/collaborating with others who are doing the same.” Another respondent mentioned that Twitter offered her access to the perspectives of veteran teachers that were lacking at her school: “All 13 of us have been teaching less than three years—so it is good to be able to talk to people who have been around a little longer.” Twitter helped teachers combat isolation associated with their content areas as well. For example, two different respondents who were the only psychology instructors at their sites noted how Twitter allowed them to collaborate with other psychology teachers. Similar comments were made by teachers of elective subjects such as Classics and foreign languages.

Respondents noted ways in which Twitter helped them deal with isolation as it related to their professional roles. Several administrators described their positions as “lonely” or “isolated,” and mentioned that opportunities to network and communicate with peers via Twitter eased such isolation. Three librarians made similar comments, with one explaining, “There’s no one else in my building who is doing the same thing I am. My Twitter network is mostly made up of other librarians.” Two teachers explained that Twitter helped them manage the emotions of their entry into the profession, with one saying, “The networking and emotional support were pretty critical as a beginning teacher going through tough times,” and the other commenting, “In my first year of teaching, it is nice to know I’m not alone.” Twitter thus appears to provide not just access to technical knowledge and professional resources for educators who might otherwise be isolated, but also important emotional support in some cases.

Another theme in respondents’ comments was interest in collaborating with the type of educators present on Twitter. Comments described tweeting educators as “forward-thinking,” “energetic,” “thought leaders,” “change agents of education,” and “engaged, confident, and optimistic.” Many explicitly described the Twitter environment as “positive.” For example, one elementary teacher said, “I like the positive vibe . . . no complaining or griping, just people working together to learn and help one another.” Twitter participants were seen as “innovative” by multiple respondents, with one teacher commenting, “I feel like Twitter helps me connect with people who like to question and push boundaries and ideas.”

Given our survey questions and the fact that our sample was comprised entirely of voluntary users of Twitter, strong criticisms of the service were rare. However, three teachers mentioned that they sometimes struggled with the

time commitment they perceived Twitter entails. For example, one individual felt that she only had time to use Twitter at educational conferences. Also, five respondents mentioned limitations of the content shared on Twitter; it was criticized variously as being “too opinion based,” “not new,” and “lacking evidence.” Three respondents suggested that the 140-character limit constrained the complexity of ideas expressed. For example, one education consultant commented, “It doesn’t replace a good day of in-service or a rigorous graduate course. Twitter lets me listen in on conversations and sometimes participate in them but doesn’t have the depth and rigor.” The enthusiasm for Twitter apparent in many respondents’ comments was not, therefore, unanimous.

Discussion

Key Findings

While our survey yielded a number of results related to how and why educators use Twitter, we further discuss four findings that seem particularly important. First, out of three potential uses of Twitter—communication, classroom, and professional development—survey respondents accessed Twitter most for professional development (PD). A notable 96% of respondents reported they shared and acquired educational resources via Twitter, with high percentages of respondents also indicating other PD uses. These results seem noteworthy, given common cynicism about traditional PD (Hawley & Valli, 2007) and the fact that the respondents were voluntarily engaging in Twitter PD. While previous research has suggested that university instructors prefer to use Twitter for professional development (Seaman & Tinti-Kane, 2013), our data indicates that this is also true for K–12 teachers.

Second, respondents provided multiple reasons for why they were using Twitter for professional development, with combating isolation and finding community being common themes. The results of this study are consistent with other scholars’ assertions that participatory cultures thrive in online affinity spaces (Gee, 2004; Jenkins et al., 2009). Many in our sample valued opportunities to engage with colleagues around issues of interest in personalized and accessible ways. A number of educators who felt physically or philosophically isolated cited Twitter as helping to overcome such feelings, which is particularly important given the teaching profession’s historical problems with isolation (Lortie, 1975). While some have argued that online communities consist of limited commitments from atomized individuals (Mason & Metzger, 2012), a number of respondents indicated that they valued Twitter because of its sustained relationships, collaboration, and positive community. Hashtags appeared to be a unique feature of Twitter that facilitated these connections between educators with shared interests.

Third, while educators in our sample enthusiastically utilized Twitter for their own PD, they tended to use the medium far less for communication and

class activities. If Twitter can indeed allow educators to learn with and from each other in apparently meaningful ways, it stands to reason that it might also present beneficial opportunities for use with students and parents. A limited number of respondents did in fact mention what sound like powerful ways in which they have utilized Twitter in their classrooms. Our data thus suggest that the full educational potential of Twitter may currently remain untapped.

Fourth, although our sample was not random, the age profile of the survey respondents was perhaps surprising, given that the largest group of Twitter users in the general population is those who are 18–30 (Duggan & Smith, 2013). Younger and less experienced educators, belying the digital native (Prensky, 2001) stereotype, were not as well represented in our sample and used the service less diversely than their older and more experienced colleagues. Although Risser (2013) described a novice teacher who was comfortable establishing a virtual mentoring network via Twitter, this may not be the norm.

Limitations of the Study

This research is limited by nonrandom sampling and reliance upon a self-report survey. Those who responded to the survey may not represent trends in usage among the larger population of microblogging educators. Those who responded to the survey may have been more frequent and/or enthusiastic users of the service. Early adopters of technology such as Twitter may also differ from the general population of teachers in ways that limit the applicability of this study's findings. If Twitter becomes more widely adopted by educators, it may be used in different ways. Educators who have tried Twitter and did not find it useful are unlikely to have completed our survey.

Also, research on social media such as Twitter can be challenging because of the persistently shifting social media landscape. Both technical features and users' habits can change in short order. This study therefore provides a snapshot of how and why educators used Twitter during a particular time period. With time, educator use of Twitter may evolve to some extent.

Implications for Policy and Practice

Despite the limitations of our research, we believe the findings have several implications for school districts, administrators, and teachers. Districts and building-level administrators should consider ways in which they can recognize, tap into, and learn from teacher professional activity in online settings such as Twitter. PD via Twitter could potentially count toward some of the hours of professional development typically required of teachers, and/or be included in formalized professional development plans or processes. School leaders might also explore ways that other forms of PD might embrace the qualities of Twitter PD that our respondents valued, such as immediacy, personalization, differentiation, community, and positivity. If provided opportunities to do so, tweeting teachers may also be able to share with their

colleagues at their school site some of what they learn via Twitter (e.g., Forte, Humphreys, & Park, 2012).

Although we recognize that school districts must be mindful about protecting students, our sample's enthusiasm for Twitter suggests decision makers should also seek to craft policies that do not unnecessarily eliminate the educational potential of social media tools. Several of the survey respondents described innovative uses of Twitter with their students. Furthermore, using social media in schools can provide educators opportunities to explicitly or implicitly teach social media literacies like attention and critical consumption (Rheingold, 2012). But almost half of the respondents were prevented from considering such uses by district policies, despite the fact that the U.S. Department of Education (2010) National Education Technology Plan 2010 encourages all schools to experiment with using social media to expand learning opportunities for both students and teachers.

Recommendations for Future Research

Although our sample's enthusiasm for Twitter-facilitated professional development is noteworthy, the effects of teacher professional development upon teachers' classroom practices and student learning outcomes are not always clear. Research that goes beyond self-reports and explores how teachers' Twitter PD activities affect, or do not affect, their teaching and their students' learning could help better determine the actual value of that PD. Furthermore, despite previous research that has suggested that Twitter offers benefits for communication and class activities, our respondents were not employing the service for these purposes nearly as often as they did for PD. More exploration by researchers of microblogging for communication and class activities, particularly in K-12 settings, would help assess possibilities for and limitations of its use. Research might also seek to understand what factors explain why educators who evidently see value in using Twitter for their own learning might choose not to use it with their students.

Future research might clarify whether younger and less experienced teachers are indeed using Twitter less for professional purposes than their veteran colleagues, or whether this was an idiosyncrasy of our sample. If career stage does appear to correlate with usage rates, then researchers could seek to understand what factors might be attracting more veteran educators and/or discouraging more novice educators from microblogging. For example, researchers might investigate whether factors such as the immediate demands of the first few years of teaching or the public nature of Twitter discourage novices from microblogging for professional purposes.

Conclusion

While Twitter is neither an educational panacea nor a tool guaranteed to last in its current form, the medium exemplifies many of the characteristics that make Web 2.0 sites and services exciting, messy, and tentative. Twitter is

likely to remain an important piece of the social media landscape at least in the short term, as overall use of the service has doubled since 2010, and use among teens has increased as well (Madden et al., 2013). Even if Twitter fades as one of the most popular media choices for educators, the need for the types of interactions and experiences participatory social media affords seem likely to endure. Many involved in education disregard Twitter as inconsequential drivel, but this dismissiveness is increasingly indefensible considering the mounting body of formal research and teacher-tested uses. The question is not whether educators will use Twitter and other social media services, but how can they use such services most effectively and wisely? Finding quality answers to this question could help sustain worthwhile educational experiences for students and teachers navigating the new media environment.

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References

- Ahrenfelt, J. (2013). Immersive learning in the history classroom: How social media can help meet the expectations of a new generation of learners. In T. Haydn (Ed.): *Using new technologies to enhance teaching and learning in history* (pp. 152–161). Abingdon, UK: Routledge.
- Badge, J., Johnson, S., Moseley, A., & Cann, A. (2012). Observing emerging student networks on a microblogging service. *Journal of Online Learning and Teaching*, 7(1), 90–98. Retrieved from http://jolt.merlot.org/vol7no1/cann_0311.htm
- Borko, H. (2004). Professional development and teacher learning: Mapping the terrain. *Educational Researcher*, 33(8), 3–15.
- Blumengarten, J. (n.d.). *Some educational hashtags*. Retrieved from <http://www.cybraryman.com/edhashtags.html>
- Brown, E. (2012, January 22). Teachers take to Twitter to improve craft and commiserate. *Washington Post*. Retrieved from http://articles.washingtonpost.com/2012-01-21/local/35439858_1_twitter-chat-three-teachers-lesson-plans
- Charmaz, K. (2006). *Constructing grounded theory: A practical guide through qualitative analysis*. Thousand Oaks, CA: Sage.
- Carpenter, J. P. (2014). Twitter's capacity to support collaborative learning. *International of Journal Social Media and Interactive Learning Environments*, 2(2), 103–118.
- Carpenter, J. P., & Krutka, D. G. (2014). Chat it up: Everything you wanted to know about Twitter chats but were afraid to ask. *Learning and Leading with Technology*, 41(5), 10–15.

- Chamberlin, L., & Lehman, K. (2011). Twitter in higher education. In C. Wankel (Ed.), *Educating educators with social media* (pp. 375–392). Bingley, UK: Emerald Group Publishing.
- Chen, L., & Chen, T. L. (2012). Use of Twitter for formative evaluation: Reflections on trainer and trainees' experiences. *British Journal of Educational Technology*, *43*(2), E49–E52. doi:10.1111/j.1467-8535.2011.01251.x
- Domizi, D. P. (2013). Microblogging to foster connections and community in a weekly graduate seminar course. *TechTrends*, *57*(1), 43–51.
- Dubrovsky, V. J., Kiesler, S., & Sethna, B. N. (1991). The equalization phenomenon: Status effects in computer-mediated and face-to-face decision making groups. *Human Computer Interaction*, *6*(2), 119–146.
- Duggan, M., & Smith, A. (2013, December 30). *Social media update 2013*. Pew Research Center's Internet & American Life Project. Retrieved from http://pewinternet.org/~media/Files/Reports/2013/Social%20Networking%202013_P
- Dunlap, J. C., & Lowenthal, P. R. (2009). Tweeting the night away: Using Twitter to enhance social presence. *Journal of Information Systems Education*, *20*(2), 129–135.
- Ebner M., Lienhardt C., Rohs M., & Meyer I. (2010) Microblogs in higher education—A chance to facilitate informal and process-oriented learning. *Computers & Education*, *55*(1), 92–100.
- Elavsky, C. M., Mislán, C., & Elavsky, S. (2011). When talking less is more: Exploring outcomes of Twitter usage in the large-lecture hall. *Learning, Media and Technology*, *36*(3), 215–233.
- Ferriter, W. M., Ramsden, J. T., & Sheninger, E. C. (2012). Building social media connections. *Principal*, *91*(3), 18–19.
- Forté, A., Humphreys, M., & Park, T. (2012). Grassroots professional development: How teachers use Twitter. *Proceedings of the 6th International AAAI Conference on Weblogs and Social Media, Dublin, Ireland* (pp. 106–113). Retrieved from <http://www.aaai.org/ocs/index.php/ICWSM/ICWSM12/paper/view/4585/4973>
- Gee, J. P. (2004). *Situated language and learning: A critique of traditional schooling*. New York, NY: Routledge.
- Hawley, W. D., & Valli, L. (2007). Design principles for learner-centered professional development. In W. D. Hawley & D. L. Rollie (Eds.), *The keys to effective schools: Educational reform as continuous improvement* (pp. 117–137). Thousand Oaks, CA: Corwin Press.
- Hodges, C. (2010). If you Twitter, will they come? *EDUCAUSE Quarterly*, *33*(2). Retrieved from <http://www.educause.edu/ero/article/if-you-twitter-will-they-come>
- Hur, J. W., & Brush, T. A. (2009). Teacher participation in online communities: Why do teachers want to participate in self-generated online communities of K–12 teachers? *Journal of Research on Technology in Education*, *41*, 279–303.
- Jenkins, H., Purushotma, R., Weigel, M., Clinton, K., & Robison, A.J. (2009). *Confronting the challenges of participatory culture: Media education for the 21st century*. Cambridge, MA: MIT Press.
- Junco, R., Elavsky, C. M., & Heiberger, G. (2012). Putting Twitter to the test: Assessing outcomes for student collaboration, engagement and success. *British Journal of Educational Technology*, *44*(2), 273–287. doi:10.1111/j.1467-8535.2012.01284.x
- Junco, R., Heiberger, G., & Loken, E. (2011). The effect of Twitter on college student engagement and grades. *Journal of Computer Assisted Learning*, *27*(2), 119–132.
- Kassens-Noor, E. (2012). Twitter as a teaching practice to enhance active and informal learning in higher education: The case of sustainable tweets. *Active Learning in Higher Education*, *13*(1), 9–21.
- Krutka, D. G. (2014). Social media as a catalyst for convergence culture: Immersing pre-service social studies teachers in the social media terrain. In W. B. Russell (Ed.), *Digital social studies* (pp. 271–302). Charlotte, NC: Information Age Publishing.
- Krutka, D. G., & Milton, M. K. (2013). The Enlightenment meets Twitter: Using social media in the social studies classroom. *Ohio Social Studies Review*, *50*(2), 22–29.
- Kurtz, J. (2009). Twittering about learning: Using Twitter in an elementary school classroom. *Horace*, *25*(1), 1–4.

- Lee, V. R., Shelton, B. R., Walker, A., Caswell, T., & Jensen, M. (2012). Retweeting history: Exploring the intersection of microblogging and problem-based learning for historical reenactments. In K. K. Seo & D. A. Pellegrino (Eds.), *Designing problem-driven instruction with online social media* (pp. 23–40). Charlotte, NC: Information Age Publishing.
- Lortie, D. (1975). *Schoolteacher: A sociological study*. Chicago, IL: University of Chicago Press.
- Lowe, B., & Laffey, D. (2011). Is Twitter for the birds? Using Twitter to enhance student learning in a marketing course. *Journal of Marketing Education*, 33(2), 183–192.
- Lu, A. (2011, July 13). Twitter seen evolving into professional development tool. *Education Week*, 30(36), 20.
- Madden, M., Lenhart, A., Cortesi, S., Gasser, U., Duggan, M., Smith, A., & Beaton, M. (2013, May 21). *Teens, social media, and privacy*. Pew Research Center & Berkman Center for Internet & Society. Retrieved from http://www.pewinternet.org/~media/Files/Reports/2013/PIP_TeensSocialMediaandPrivacy_FINAL.pdf
- Matteson, A. (2010). Tweacher(n): The Twitter enhanced teacher. *School Library Monthly*, 27(1), 22–23.
- Mason, L., & Metzger, S.A. (2012). Reconceptualizing media literacy in the social studies: A pragmatist critique of the NCSS position statement on media literacy. *Theory and Research in Social Education*, 40(4), 436–455.
- Porterfield, K., & Carnes, M. (2011). Twitter: Not just about ham sandwiches. *Educational Leadership*, 68(8). Retrieved from <http://www.ascd.org/publications/educational-leadership/may11/vol68/num08/Twitter@-Not-Just-About-Ham-Sandwiches.aspx>
- Prensky, M. (2001). Digital natives, digital immigrants. *On the Horizon*, 9(5), 1–6.
- Rheingold, H. (2012). *Net smart: How to thrive online*. Cambridge, MA: MIT Press.
- Rinaldo, S. B., Tapp, S., & Laverie, D. A. (2011). Learning by tweeting: Using Twitter as a pedagogical tool. *Journal of Marketing Education*, 33(2), 194–204.
- Risser, H. S. (2013). Virtual induction: A novice teacher's use of Twitter to form an informal mentoring network. *Teaching and Teacher Education*, 35, 25–33.
- Sample, M. (2010, August 16). *A framework for teaching with Twitter* [Web log]. Retrieved from <http://chronicle.com/blogs/profhacker/aframework-for-teaching-with-twitter/26223>
- Seaman, J., & Tinti-Kane, H. (2013, October). *Social media for teaching and learning* [online]. Pearson Learning Solutions and Babson Survey Research Group. Retrieved from <http://www.pearsonlearningsolutions.com/assets/downloads/reports/social-media-for-teaching-and-learning-2013-report.pdf#view=FiTH,0>
- Sprinthall, N. A., Reiman, A. J., & Thies-Sprinthall, L. (1996). Teacher professional development. In J. P. Sikula, T. J. Buttery, & E. Guyton (Eds.), *Handbook of research on teacher education* (2nd ed., pp. 666–703). New York, NY: Macmillan.
- Twitter, Inc. (n.d.). *About*. Retrieved from <https://twitter.com/about>
- U.S. Department of Education. (2010). *National education technology plan 2010*. Retrieved from <http://www.ed.gov/technology/netp-2010>
- Van Dijck, J. (2011). Tracing Twitter: The rise of a microblogging platform. *International Journal of Media and Cultural Politics*, 7(3), 333–348. doi:10.1386/macp.7.3.333_1
- Voorn, R. J. J., & Kommers, P. A. M. (2013). Social media and higher education: Introversion and collaborative learning from the student's perspective. *International Journal of Social Media and Interactive Learning Environments*, 1(1), 59–73.
- Vrasidas, C., & Zembylas, M. (2004). Online professional development: Lessons from the field. *Education and Training*, 46(6/7), 326–334.
- Wei, R. C., Darling-Hammond, L., Andree, A., Richardson, N., & Orphanos, S. (2009). *Professional learning in the learning profession: A status report on teacher development in the U.S. & abroad* (Technical report). Oxford, OH: Learning Forward; Stanford, CA: Stanford Center for Opportunity Policy in Education.
- Wesely, P. M. (2013). Investigating the community of practice of world language educators on Twitter. *Journal of Teacher Education*, 64(4), 305–318.

Wright, N. (2010). Twittering in teacher education: Reflecting on practicum experiences. *Open Learning*, 25(3), 259–265.

Young, J. (2009, November 23). Teaching with Twitter: Not for the faint of heart. *Chronicle of Higher Education*. Retrieved from <http://chronicle.com/article/Teaching-With-Twitter-Not-for/49230>

Appendix

Educators & Twitter Survey (without informed consent & demographic section)

Twitter Usage Information

How long have you been using Twitter? (Choose one)

1. Less than six months
2. Less than one year
3. Less than 2 years
4. Less than 3 years
5. 3 years or more

How long have you been using Twitter professionally? (Choose one)

1. Less than 6 months
2. Less than 1 years
3. Less than 2 years
4. Less than 3 years
5. 3 years or more

Typically, how frequently do you use Twitter? (Choose one)

1. Multiple times per day
2. Daily
3. Weekly
4. Monthly
5. Frequency of use varies

Professional vs. Personal use of Twitter (Choose one)

1. I use Twitter for professional purposes
2. I use Twitter for personal purposes
3. I use Twitter for professional and personal purposes

For what professional purposes do you use Twitter?

*Check all of the reasons that apply.

1. Resource sharing / acquiring
2. Collaboration with other educators
3. Networking
4. Emotional support
5. Communication with students
6. Communication with parents
7. In-class activities for students
8. Out-of-class activities for students
9. Participate in Twitter Chats
10. Backchanneling
11. Other

If you teach in a school district, what is your district policy on Twitter? (Choose one)

1. Allowed for teachers
2. Allowed for teachers and students
3. Blocked for everyone
4. Other

Aside from Twitter, what other social media services do you use? *Check all of the reasons that apply.

1. Facebook
2. Pinterest
3. Linked In
4. Scoop.It
5. Tumblr
6. Ning
7. Foursquare
8. Instagram
9. Paper.li
10. Course-management system tools (Edmodo, Gaggle, Schoology, MyBigCampus, Moodle, etc.)
11. Other

Why and how do you use Twitter? (final section)

Please explain what aspects of Twitter you find most valuable, and why. (Open-ended question)

Which hashtags do you regularly use, or search for, to connect with other educators? *Check all of the reasons that apply.

Please use the "other" box to include any other hashtags that you regularly use. Include multiple hashtags in the "other" box if appropriate.

1. #edchat
2. #schat
3. #engchat
4. #scichat
5. #mathchat
6. #ntchat
7. #elemchat
8. #cpchat
9. #satchat
10. #21stedchat
11. #lchat
12. #mschat
13. #edreform
14. #edpolicy
15. #ccss
16. #gtchat

Please list the hashtags (e.g., #edchat) for any moderated weekly/monthly chats in which you regularly participate. (Open-ended question)

Include your e-mail address if you are willing to participate in an individual or group follow-up interview regarding educators' use of Twitter.