

Should We Ask Students to Tweet? Perceptions, Patterns, and Problems of Assigned Social Media Participation

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Teacher educators have increasingly integrated social media into their education courses with aims including improving instruction and preparing students for a connected world. In this study, the authors sought to better understand the possibilities and challenges of scaffolding 60 pre- and in-service teachers across two universities into professional learning networks (PLNs) through a social media assignment. Participants analyzed educator practices, participated in, and envisioned future uses of teacher Twitter. Consistent with previous studies, education students were positive about the relational and relevant aspects of Twitter use. However, students' participation did not mimic the participatory cultures of affinity spaces often reported by connected educators in the literature. Instead, participants tweeted around deadlines and quit using their accounts for professional education purposes once the class ended. In contrast to recent literature, this article argues that social media integration for education students should focus on relational and relevant engagements and content, as opposed to attempting to build social media augmented PLNs for unknown futures.

Educators use Twitter for a variety of purposes, and scholars from varied fields have increasingly studied the topic. Our own professional uses of the social media platform spurred us to integrate and scaffold it in our education classes with the hope that our education students would benefit from the informal and participatory mode of communication and build professional learning networks (PLNs) for their careers.

The recent literature has been largely optimistic about using Twitter for educational purposes, which continues a historical trend in the field of optimism that emerging media forms will transform educational experiences (Cuban, 1986; Selwyn, 2017). Scholars are increasingly raising concerns about whether mediums developed for markets are appropriate for educational environments (Krutka et al., 2019; Nagle, 2018). This study has caused us to ask, “Should we ask students to tweet?”

Building on social media pedagogy research on integrating Twitter into education courses (Krutka, Nowell, & Whitlock, 2017), we offer insights into the perceptions, patterns, and problems of practice in a scaffolded Twitter assignment with 60 education students across two universities. We analyzed the content, timing, and patterns of social media posts of our education students. We also explored the short- and long-term implications of education students’ engagement by triangulating survey data, tweeting practices, and social media activity beyond the course.

Our results suggest that scaffolding social media activities provides short-term course benefits by offering spaces to share ideas and resources while also facilitating closer relationships among students and to the instructor. However, tweeting patterns (e.g., tweeting around deadlines and inactive accounts after the course) counter participants’ optimistic claims they will sustain professional tweeting, and drawbacks are stubbornly persistent both in our study and across the literature. We conclude this article by contending that the benefits of repurposing Twitter as a learning technology may not outweigh the costs in many educational contexts.

Theoretical Lens

We drew from the concept of teacher affinity spaces as a lens through which to interpret our findings. Gee (2004) defined affinity spaces as collaborative learning spaces where groups of people coalesce around common interests and toward similar goals. Participants in such spaces act as both teachers and learners who engage based on their interests, knowledge, experiences, and needs while sharing various forms of knowledge.

Participation in such spaces tends to be self-directed and voluntary; learning can be serendipitous and playful, concentrated or distributed. Moreover, participatory cultures offer educational benefits, because users take up the effort of cocreating knowledge through the production of media (Jenkins, Purushotma, Weigel, Clinton, & Robison, 2009). While affinity spaces do not have to be online, social media platforms afford educators opportunities to transcend geographic distance and time to connect with fellow educators around topics of interest in ways that were not as feasible prior to these mediums. Still unclear is the degree to which, for example, teacher educators can encourage the informal learning that occurs in affinity spaces and participatory cultures for education students within more formal school contexts.

Greenhow and Lewin (2016) highlighted the “debate about the benefits and challenges of appropriating technologies (e.g., social media) in everyday use for learning and little exploration of the connections between formal, nonformal, and informal learning such technologies might facilitate” (p. 7). Formal learning is often associated with courses of study, while informal learning involves self-

directed and voluntary activities individuals pursue. Educators might also think of learning on a continuum from informal to formal (Lai, Khaddage, & Knezek, 2013) or by attributes of each approach with consideration of factors such as purpose, process, location, and content (Colley, Hodkinson, & Malcolm, 2003).

Many educators who appropriate commercial social media platforms as learning technologies seek to achieve aspects of informal learning within the bounds of formal educational settings. Several studies have indicated that more informal learning environments allow educators opportunities to “share experiences, knowledge and materials, as well as provide emotional support, develop collective projects and offer skills training” (Macià & García, 2016, p. 298). In the following section, we detail an array of studies that offer insights into the role of social media in education.

Literature Review

Reviews of research have generally focused on short-term or anticipated benefits of Twitter’s role in education settings, with less attention to drawbacks or constraints. Tang and Hew’s (2017) narrative review of 51 studies published between 2006 and 2015 on teaching and learning with Twitter primarily included descriptive research ($n = 42$) taking place in higher education settings ($n = 46$) in Europe and North America ($n = 39$). They reported that most studies indicated Twitter was used for communication ($n = 29$) and assessment ($n = 17$) with primarily positive learner responses. Educators in the studies used Twitter for varying purposes, including as a means to summarize key points, push content to students, enhance instructor credibility, encourage interactions among class participants, share media in real time or reflect on assignments, or as a means of in-class assessment.

The six experimental studies in Tang and Hew’s (2017) review suggested that achievement improved for Twitter-using groups. Findings can be difficult to translate to other educational settings, especially contexts like teacher education where large lecture courses are less common. Instructors’ strategies, presence, and knowledge of the platform are integral to the ways assignments are enacted in practice (e.g., Lemon, 2019).

Other reviews of literature have offered similar findings. Gao, Luo, and Zhang’s (2012) review of early studies suggested positive educational effects, such as increased engagement, reflective thinking, and collaborative learning, with less focus on possible constraints, drawbacks, or inequities. Malik, Heyman-Schrum, and Johri’s (2019) review of 103 peer-reviewed studies of Twitter uses in educational settings from 2007 to 2017 reported similar findings to previous reviews in highlighting benefits (i.e., increased motivation for learning, enhanced communication, auxiliary support, and professional development and networking) with less attention to drawbacks (i.e., information overload, privacy concerns, and constricting nature of the character limit). The lack of focus on short-term drawbacks of assignments constitutes a gap in the literature.

Education Students’ Perspectives

Educators’ research on the uses of Twitter in their classes relies heavily on participants’ self-reports (Tess, 2013). Education students (e.g., teacher candidates and graduate students) tend to offer mixed reviews of Twitter integration, with

participants expressing concerns both at the beginning and end of assignments. Challenges in using social media are often identified (e.g., learning curve, information overload, participants tweeting less than required, and limitations of characters; Gao et al., 2012), but researchers have generally described students' concerns as minor and solvable.

Tang and Hew (2017) conveyed that most studies suggested positive learner responses, with only 10 studies addressing concerns about "increased workload, privacy, message length limitation, and possible distraction" (p. 101). Participants in several studies have struggled with the constraints of Twitter's limit of 140 characters per tweet (e.g., Gao et al., 2012; Kassens-Noor, 2012; Luo, Moore, Franklin, & Crompton, 2019), although the limit expanded to 280 characters in 2017.

Participants, and especially those with initially skeptical views, have tended to report shifts to more positive sentiments as they participate in Twitter assignments (Colwell & Hutchison, 2018; Krutka, 2014; Lemon, 2019; Luo, Shah, & Crompton, 2019). For example, Luo, Sickel, and Cheng (2017) described the ways in which preservice teachers' participation in online Twitter chats worked to challenge their negative preconceived notions of the educational usage of social media platforms for professional learning.

Within varying contexts, educators and researchers have shared ways in which social media allows for enhanced relationships within classes (Carpenter, 2015), spaces for engagement and reflection (Krutka, Bergman, Flores, Mason, & Jack, 2014), and support and collaborative learning (Voorn & Kommers, 2013) and mentoring (Curran & Chatel, 2013), among other benefits. Colwell and Hutchison (2018) noted that their teacher candidates (TCs) viewed Twitter as a complex space and valued accessing educators and resources. Contrary to many studies, however, participants were skeptical about growing PLNs.

By the end of the courses, students have generally moved toward more positive perceptions of educational uses of Twitter (e.g., Colwell & Hutchison, 2018; Luo et al., 2019). Carpenter, Tur, and Marín (2016) reported, however, that education students in the United States were more positive about using Twitter for educational purposes than was a comparison group in Spain.

Researchers have noted challenges related to class Twitter uses. Although Luo and Gao (2012) identified student engagement, interactivity, collaborative learning, and informal learning as affordances of Twitter integration with 10 graduate students, they recognized challenges such as information overload, distraction from assignment aims, and lack of structure for activities.

Hsieh (2017) reported that, although secondary TCs were positive about the potential of professional Twitter uses, they often struggled with the mechanics and knowledge required for Twitter chat participation when interacting primarily with in-service tweeters. For some TCs, "difficulties with the chat process left them feeling like outsiders during the chat" and others "felt that they didn't have a lot to contribute because of lack of knowledge or professional experiences" (p. 555). Hsieh reported that 46% of TCs ($n = 18$) planned to continue participating in Twitter chats as part of their ongoing professional practice, but did not report data after the course to know whether they continued tweeting. Mullins and Hicks (2019) similarly identified that seven preservice teachers appreciated sharing,

finding, and networking in #sschat Twitter chats, but they also struggled to participate due to their lack of teaching experience or comfort with the platform.

Similarly, in Delello and Consalvo's (2019) case study, undergraduates ($n = 18$) and graduate students ($n = 47$) expressed ambivalence to Twitter chats within their education course, which they found "overwhelming, fast-paced, complicated, unavailable, and an overall unawareness" (p. 96). Students then later reported positive feelings about Twitter and an intention to continue using Twitter to build their PLNs (91%) and participate in chats (94%). This study is similar to many other studies that address challenges, but offer generally optimistic conclusions, particularly about anticipated future uses.

Scaffolding

Education students may need substantial scaffolding and modeling to integrate social media into their professional lives. Carpenter, Cook, Morrison, and Sams (2017) argued that TCs "need suggestions for building their PLN" (p. 58). Numerous researchers have pointed out that scaffolding is needed to help students consider prior knowledge and use of the medium, context collapse of personal and professional lives, and better understand professional uses (Benko, Guise, Earl, & Gill, 2016; Hsieh, 2017; Krutka et al., 2017; Lemon, 2019; Luo, Shah et al., 2019; Mullins & Hicks, 2019).

The benefits of using Twitter in educator preparation programs might include engaging TCs in disciplinary-specific communities of practice (Lemon, 2019) with participants beyond their class (Benko et al., 2016), encouraging positive class relationships (Chen & Chen, 2012; Preston, Jakubiec, Jones, & Earl, 2015; Solmaz, 2016), extending classroom discussion (Carpenter, 2015), encouraging reflection (Wright, 2010), developing teacher identities (Carpenter et al., 2017), and even challenging TCs to interrogate their positionalities (Cook & Bissonnette, 2016). In a review of literature regarding social media in education, Nagle (2018) explicitly called for teacher educators to scaffold and support more critical practices around social media like Twitter, especially taking into account how participation in these mediums can expose students to harmful, misogynistic, and racist ideologies. Nagle argued that educators must provide "guidance and scaffolding" to confront various forms of cyber violence on Twitter that are more likely to impact people of color, women, and other marginalized groups (p. 92). To this point, Krutka et al. (2019) contended that educators must teach "against" the capitalist ethics of social media companies which compromise transparency, equity, health, safety, and democracy.

Informal Learning and PLNs

Teacher educators frequently hoped that uses of social media in their courses might help students develop PLNs that expand informal learning beyond the course (Krutka et al., 2017; Hsieh, 2017; Luo et al., 2017; Trust, 2012, 2015). Researchers have found no singular way to define or bound the professional learning of educators, particularly as these activities increasingly take place across a variety of online spaces.

Trust, Krutka, and Carpenter (2016) defined PLNs as "uniquely personalized, complex systems of interactions consisting of people, resources, and digital tools that support ongoing learning and professional growth" (p. 28). Analysis of 732

teachers' responses suggested that teachers' PLNs helped them meet affective, social, cognitive, and identity needs. In their review of 52 empirical studies, Lantz-Andersson, Lundin, and Selwyn (2018) reported that formal and informal online groups meet disparate educator needs and encourage collegial and supportive practices, but they argued questions remain about how group norms influence the "the collaborative possibilities of teachers' online professional learning" (p. 313).

Twitter can mediate professional support networks for TCs that extend beyond teacher preparation programs (Lord & Lomicka, 2014; Risser, 2013). Teacher educators have also researched challenges of tweeting for professional and educational purposes as compared to personal ones (Colwell & Hutchison, 2018; Lemon, 2019).

According to Carpenter et al. (2017), this disconnect can be mitigated by intentional and thoughtful effort on the part of teacher educators. In contrast, Luo et al. (2019) reported that in a case study of 38 master's students in an online course, Twitter did not work to expand their PLNs beyond the class or "engage in discussion with people they don't know on Twitter" (p. 38).

Tour (2017) interviewed educators who engaged in self-initiated learning through PLNs and found that participants cultivated beneficial practices like collaboration, reflection, and socialization. Prestridge (2019) identified four categories of teacher engagement online with social media, including educators who scan social media for ideas they might use (i.e., info-consumer), seek content they can share (i.e., info-networker), share content for feedback or curricular validation (i.e., self-seeking contributor), and engage in learning communities (i.e., vocationalist). Nochumson (2019) reported that Twitter uses by elementary teachers influenced their technology integration, teaching practices, and educational opportunities.

Researchers have regularly reported that education students express a willingness to continue using Twitter in their careers, but these claims are often either conjectural or based on self-reports (Krutka et al., 2017; Colwell & Hutchison, 2018; Delello & Consalvo, 2019; Hsieh, 2017; Luo, Shah et al., 2019; Luo et al., 2017; Sadaf, Newby, & Ertmer, 2013; Young & Kraut, 2011). In their review of a decade of Twitter studies on educational uses, Malik et al. (2019) described how studies regularly discuss "future use intentions," but they failed to point out that these claims are supported by little evidence (p. 15).

Although Carpenter's (2015) TCs ($N = 20$) professed to positive experiences with their course Twitter assignment that included asynchronous and synchronous (i.e., Twitter chats) tweeting, most students (65%) quit using the medium despite almost all students (95%) indicating they were at least likely to continue. Similarly, Solmaz (2016) reported that "many of the participants discontinued to use Twitter once the course was over" (p. 11), and Mullins and Hicks' (2019) teacher candidates "did not foresee themselves participating in anymore chats" (p. 233).

Clearly, the field needs to better understand the future social media uses and PLN activities of education students, because Twitter assignments have at least partially been justified on the contention that they should or will continue using the medium beyond the course (e.g., Hsieh, 2017; Krutka et al., 2017; Luo et al., 2017).

Social Media Pedagogies

Educators and research have increasingly considered what pedagogies might inform social media integration. Lemon (2019) offered an approach to Twitter integration grounded in art theory, risk-taking issues particularly to art education, and pedagogies that paid close attention to context collapse, sharing around course aims, and the class relationships of TCs ($n = 151$).

Carpenter et al. (2017) drew on their experiences with integrating Twitter in their classes to offer six specific recommendations teacher educators can implement, such as suggesting which accounts to follow, providing guidelines for tweet frequency, and bringing Twitter interactions into in-class discussions. Cook and Bissonnette (2016) suggested that Twitter should be used “as one of many instructional tools” to promote a social justice orientation among teacher education students (p. 83).

Krutka et al. (2017) asked students in education classes across three universities to tweet primarily as a backchannel to class readings and activities using class hashtags. Although students generally viewed the communication and its effects on class relationships positively, the researchers concluded that the assignment required more continuity between participants’ prior social media experiences, activities in the class, and their future professional uses to be more educative.

While these recommendations can be particular to their contexts, they offer educators ways to think about Twitter integration effectiveness for TCs. Considering this literature, we investigated the following research questions:

1. What are education students’ perceptions and patterns of participation in a scaffolded Twitter assignment?
2. What are the short and long-term implications of education students’ engagement in the scaffolded Twitter assignment?

Methods

The changing landscape of social media presents researchers with the challenge of making sense of complex online ecosystems that offer a “moving target” of changing platforms and practices (Hogan & Quan-Haase, 2010, p. 309). Researching social media within an educational context is doubly challenging because educational research is dependent on many contextual factors (e.g., students, instructor, programmatic demands, and medium experiences) that prevent generalizability or transferability of findings.

We approached this study from an interpretivist perspective, wherein we recognized that “particular actors, in particular places, at particular times, fashion meaning out of events and phenomena through prolonged, complex processes of social interaction involving history, language, and action” (as defined by Schwandt, 1998, p. 222). We sought to “elucidate the process of meaning construction” throughout this manuscript so readers may interpret our study to their contexts (p. 222).

Contexts and Participants

We are two White teacher educators and former teachers interested in how, and whether, social media might be understood in teacher education. We recognize that because of our positionalities we may not experience the Twitter cyberviolence (Nagle, 2018) that may affect our students, but we sought to open spaces to confront concerns and questions.

We used nonprobability convenience sampling to recruit participants for this study from our teacher education courses (Etikan, Musa, & Alkassim, 2016). Not only did this convenience sampling allow for expedited data collection and ready availability, but it permitted us to draw on our wisdom of practice around social media pedagogies built from years of teaching and reflection (as in Shulman, 1986). We worked to mitigate undue influence over our students by ensuring that participation was voluntary and by seeking to learn alongside students to improve practice (as recommended by Cochran-Smith & Lytle, 2009).

Participants in this study included a subset of 60 undergraduate preservice and graduate in-service teachers from two universities in the southeast and southwest United States. Our participant demographics (at 82% female, 18% male; 62% White, 15% African American, 12% Hispanic, 7% two or more races, and 5% Asian) largely mirrored trends for average teacher representation in the United States, with the exception of higher numbers of African American and Asian students (National Center for Education Statistics, 2013).

Study participants represented a mix of five undergraduate and graduate sections of two educational foundations courses, two English language arts (ELA) methods courses, and a disciplinary literacy course. Participants were evenly distributed between undergraduate (47%) and graduate (53%) populations.

Social Media Assignment

Building on prior research and previous iterations of the assignment (Krutka et al., 2017), we developed our social media assignment with the initial aims of scaffolding education students into teacher uses of Twitter, encouraging more informal backchannel dialogues, and encouraging PLN growth for their careers. With all of these aims, we chose Twitter due to the ease with which education students were able to connect with a vibrant pool of enthusiastic educators and organizations (Carpenter & Krutka, 2014; Visser, Evering, & Barrett, 2014).

We offered students an alternative assignment in the case they preferred not to use the medium, but no students selected this option. Two students opted out of study participation. They completed the course assignments but we excluded their data from analysis.

In another paper, we addressed how our participants grew in their social media mindfulness via a social media diary and fast (Damico & Krutka, 2018), but in this paper our data primarily draws from beginning and end-of-the-semester surveys, a PLN exploration assignment, 400 tweets collected over a 4-week period (Table 1), and a survey of their accounts at 18 and 30 months after the course. The initial survey and resulting class conversations were intended to scaffold participants' prior experiences, understandings, and beliefs about social media into the

assignment. The “PLN exploration” was meant to provide mentor tweeters and models in teacher Twitter (see Table 1 for assignment details).

We collected demographic and contextual data from our pre- and postsurveys, with the only primary data coming from the open-ended questions. The three open-ended questions in the presurvey queried participants about their expectations for the course and their career and offered space to share other pertinent information or concerns. The postsurvey asked about what they perceived as the benefits and challenges of the assignment. These surveys allowed us to understand the continuity of students’ experiences and be responsive to their needs and concerns.

Education students were free to tweet about topics that interested them using our course hashtags. We did not penalize students for not meeting tweet requirements, but instead asked questions and offered feedback. Our criteria for “substantive posts” was to build “upon co-learners’ ideas, poses questions, makes connections, share advice and resources, and/or offers another critical perspective that draws directly on course content.”

Data Analysis

We analyzed and triangulated qualitative data from the surveys, PLN exploration, and the tweets via iterative sessions of coding and memo writing and through the contracting and enlarging of salient thematic categories (as in Charmaz, 2014). Such emergent methods “consist of systematic, yet flexible guidelines for collecting and analyzing qualitative data to construct theories from the data themselves” (p. 1).

Due to the idiosyncrasy and uniqueness of our datasets, we chose to code open-ended survey responses, the PLN exploration assignment, and tweets through a cooperative process in which we agreed on an emergent structure of codes through rounds of conversations instead of using an interrater reliability metric (as in Saldaña, 2016). With this approach, we analyzed tweets for media type, subject, and rhetoric.

In the case of the rhetoric of tweets, we used a priori codes from Gallagher (2011), as we deemed that approach more appropriate than creating our own rhetorical categories. Moreover, we engaged in document analysis of core tasks within the larger social media assignment and observational data collected from participants’ tweets. This study was limited by a nonrandom sample of participants that was a convenience sample, and thus our findings are nongeneralizable.

Table 1
PLN Social Media Assignment Tasks

Task Title	Description and Rationale	Data and Analysis
Initial Survey	Education students were asked to complete an initial survey about the ways and reasons for using different social media platforms and how these uses affected them personally and professionally. Students were also asked about their assignment and career expectations for using social media. This information helped us as instructors to be responsive to students' predispositions, preferences, and concerns.	Data included 60 participants' survey responses with demographic information, major, five quantitative questions about social media usage, and three open-ended questions about expectations for assignment and career.
Twitter PLN Exploration	We assigned education students to analyze tweets for 15 minutes from the educational accounts in their emerging PLNs and delve into questions like: <i>What purposes in general do the accounts you follow seem to have for tweeting? Are they using their accounts strictly with other educators or do they engage with communities or students? Do they use hashtags to connect with others? With whom are they interacting? What sort of grade level or content-based patterns are evident among accounts your follow?</i> Students talked in groups and submitted their analyses.	Data from 60 participants was analyzed via coding procedures that identified salient thematic categories in addition to unique or contextual responses.
Joining the Conversation	We asked class participants to create, or modify, Twitter accounts to be used professionally, follow a minimum of 15 accounts of educators and educational organizations from a provided list, and post at least three "substantive" tweets per week that contributed to our class discussions with a class hashtag week. We defined a substantive tweet as one that "builds upon co-learners' ideas, poses questions, makes connections, shares advice and resources, and/or offers another critical perspective that draws directly on course content; It adds something to the commentary, rather than simply congratulating co-learner on a well-written post." Tweets included both original tweets and responses to classmates or the instructor.	Tweets were collected via a Twitter archiver for a four-week period in the latter part of the semester and resulted in 400 tweets and 70 additional replies that did not use course hashtags. We identified tweet type and coded for various forms of content.
Final Survey (including reflection and social media plan)	We assigned a final survey on the effects of the assignment activities during the class. Within the survey, we asked students to reflect on their professional social media practices on Twitter during the semester and develop a social media plan for their professional career.	Data from 60 participants was analyzed via coding procedures that identified salient thematic categories in addition to unique or contextual responses.

Findings

When possible, our findings are presented in a chronological order that aligns with the way our students completed the assignment. This organization allows teacher educators a glimpse of what the assignment looks like in practice as they consider applications of the assignment or specific components of it in their own contexts. However, first we share students' responses to both the pre- and postsurvey, then move on to their PLN explorations, class tweeting, and final reflections and plans.

Participants' Expectations and Perspectives (Pre- and Postsurveys)

To ensure we were able to understand our education students' impressions, experiences, and perceptions of social media, we asked them to complete a short survey at the beginning of the course on their expectations and the end of the course on their perspectives. We then reviewed the surveys and considered any instructional adjustments.

Social media practices. The initial survey provided participants' perspectives on the role of social media in their lives and introduced differences between the personal and professional realm. A majority of participants indicated that social media platforms played an important role in their personal lives ($n = 37$; 60%), while only 26% ($n = 16$) said the same for their professional lives. With regard to the specific platforms they used daily, 80% ($n = 48$) marked Facebook, 48% ($n = 29$) Instagram, 42% ($n = 25$) Snapchat, 25% ($n = 15$) Pinterest, and 17% ($n = 10$) Twitter.

The majority ($n = 35$; 58%) of students reported that they mostly consumed social media content with a smaller number indicating they posted original content ($n = 24$; 40%). Only some students ($n = 8$; 13%) shared that they used social media sparingly in their lives.

When asked about the purposes for their social media uses, participants primarily cited personal reasons for using social media (Table 2). Not surprisingly, our participants utilized social media differently than many tweeting educators (Carpenter & Krutka, 2014; Visser et al., 2014), with professional reasons less common.

Assignment anxiety. Although many participants conveyed positive expectations regarding the social media assignment, some also expressed concerns ($n = 18$) regarding the time and effort required by the assignment ($n = 5$) or professional problems that might emanate from social media uses ($n = 4$). Students mentioned being "a little intimidated" and "very overwhelmed at first." A secondary ELA major shared concern that her "political views ... could either affect my grade or that some people will not handle themselves with respect with others." A middle school science candidate did not want to "risk releasing and/or receiving personal, inappropriate, or unsolicited posts." We utilized these initial concerns to revise the assignment and facilitate in-class discussions to problematize common worries.

Table 2
Reasons Participants Cited for Using Social Media at the Beginning of the Class

Reasons	<i>n</i>	%
Keeping in touch with family & friends	<i>n</i> = 56	93%
Staying abreast of the news	<i>n</i> = 44	73%
Keeping up with popular culture	<i>n</i> = 28	47%
Maintaining involvement in hobbies	<i>n</i> = 25	42%
Professional collaboration	<i>n</i> = 16	26%
Resource sharing & acquiring	<i>n</i> = 15	24%
Emotional support	<i>n</i> = 9	15%
Participating in real-time events like Twitter chats	<i>n</i> = 8	13%

Individual preservice teachers also mentioned worry about their lack of experience, privacy, and remembering to tweet, among other specific concerns. Education students also said that they were new to using social media in a college course (*n* = 6) or for professional purposes (*n* = 4) or were new to the Twitter platform (*n* = 4). An undergraduate sophomore said, “Using social media in this course kind of scares me just a bit because I mainly use social media for entertainment purposes and not for education,” but she hoped her “tweets can contribute to the class as a whole.”

Mostly positive assignment expectations and results. We gained a better understanding as instructors and researchers of our education students when we coded their beginning-of-the-course qualitative descriptions of “expectations and thoughts about using social media.” Most education students expressed some combination of enthusiasm (*n* = 15), positivity (*n* = 6), and interest (*n* = 28) when asked about the impending social media assignment activities.

For example, an ELA graduate student was enthusiastic about “being able to collaborate with peers and be able to read other’s opinions on difficult topics or challenges in the classroom.” Two students framed the assignment as important because they viewed social media as a new trend and something “digital native” youth do. A secondary language arts major and self-identified Millennial asked, “If there are ways teachers can connect to their students that students are familiar with and enjoy, why not?”

Participants highlighted the affordances of social media, viewing it as a teaching tool (*n* = 10) and a means to connect to classmates (*n* = 3). One graduate student expressed being “eager to learn more options to using social media” because the school district she worked in “uses a lot of social media, and this will be a great learning opportunity.” A special education major highlighted the affordance of an

authentic audience reading her tweets in saying, “There is definitely more accountability knowing that anyone can read what I write for this course.”

Education students expressed generally positive expectations of the Twitter component of the social media assignment, but their perceptions of how the assignment impacted relationships and learning varied by the end of the course. For example, participants anticipated that tweeting would result in positive experiences with other stakeholders like community members ($n = 41$; 68.3%), but they reported less positive ($n = 34$, 56.7%) and more neutral experiences ($n = 26$; 43.3%) with this group by the end of the course. This finding suggests that participants did not experience connections through social media with people in communities beyond class confines.

However, education students’ precourse positive expectations for gaining new resources and ideas ($n = 51$; 85.0%), understanding course content ($n = 33$; 55.0%), and decreasing isolation largely matched their final reflections on each topic. Most participants anticipated the Twitter assignment to have a neutral effect on relationships with classmates ($n = 33$; 55.0%) and their professor ($n = 39$; 65.0%). By the end of the course, they expressed more positive relational effects with classmates ($n = 37$; 61.7%) and their professor ($n = 44$; 73.3%). Although they also hoped social media might positively result in learning from peers ($n = 40$; 66.7%) and professionals beyond our class ($n = 37$; 61.7%), they expressed even more positive impacts on both learning with peers ($n = 51$; 85.0%) and professionals ($n = 47$; 78.3%) than anticipated.

The biggest gap between participants’ expectations and results was in their underestimation of the positive effects of engaging with classmates on Twitter. Overall, participants already expected to gain knowledge while decreasing isolation with others, but using Twitter in the class resulted in more positive relationships with the instructor and each other than anticipated.

In open-ended responses, like on the survey, participants expressed a range of benefits in the assignment, including connections to other people (e.g., classmates, instructor, and educators), different perspectives on class assignments, and access to educational resources. Many education students in hybrid classes also expressed appreciation for the connections to classmates, their instructor, and various ideas that can be lacking when there are not regular face-to-face meetings. Participants identified drawbacks that primarily centered around remembering and taking the time to tweet, context collapse between personal and professional accounts or educational and political content, and a general learning curve or dislike of the platform.

Twitter PLN Exploration

In asking participants to choose “mentor” Twitter accounts of educational organizations and individuals, we sought for them to view and analyze the different ways professionals utilize the medium as they considered how they might do so themselves. Our assignment required students to analyze Twitter accounts; therefore, most responses were descriptive ($n = 189$), but we also coded 70 instances where participants expressed value statements and 15 times they noted a positive shift in perceptions about teacher Twitter.

Descriptions. When describing what they viewed on Twitter, students most often referenced how Twitter offered a medium for educators and organizations to share an array of content ($n = 57$). This response is not surprising, as posting content is the most basic function of Twitter and other social media platforms. Participants thus noticed how educators shared or curated (e.g., retweeted) articles, ideas, quotes, images, videos, or questions about education topics and issues.

One undergraduate ELA major explained, “I love some of the little blurbs of theory-in-practice tips they have tweeted that they have personally used in their classrooms and had great results with.” A graduate student noticed, “Unlike the personal accounts I’ve seen on Twitter, these professional educator accounts seem to be tailored towards a pseudo swap meet of resources, ideas, and experiences.”

Not all participants viewed sharing as positively. A graduate student stated, “I feel as though they are using twitter as a source to provide information with others instead of as a feature to interact with people directly,” but she admitted, “This is the first time that I have ever used twitter, so I may be missing many different features that show how these accounts are actually interacting with the community.”

Most participants described viewing a variety of forms of participation among educational accounts that included conversations, support for colleagues and new teachers, and a generally positive network of educators ($n = 48$). For example, an undergraduate student shared the following:

Even though it’s only been a few weeks from the start of our Social Media twitter account I have really enjoyed the little community I have. My classmates tweet about things that I understand! We comment on our readings and assignments, the humorous images and gifs [images in Graphics Interchange Format that frequently are animated] have been the best. I believe that I will keep this account active even after the end of this course; there is so much to learn and I’m surrounded by those who have the same interests as I do.

When we checked 18 and 30 months after the class ended, however, there was no activity (e.g., tweets or likes) on this student’s account. Other participants mentioned noticing interactions among tweeters, engagement in chats, and ways they supported each other.

We also coded that participants described educational trends ($n = 20$) and educators provided windows into their teaching and classroom ($n = 6$). For example, this assignment was completed by participants while the Senate confirmation of Betsy DeVos as the secretary of the U.S. Department of Education was in the news. It is not surprising that our participants reported viewing tweets related to policy issues ($n = 25$) and educators-as-activists ($n = 9$). The topic of Betsy DeVos’s Senate confirmation is specifically mentioned 14 times. As one teacher education student mentioned, “Given today’s political climate and with the recent swearing in of Betsy DeVos as Secretary of Education, it seems only natural that many educators are posting concerns and questions regarding the future of education and public schools.”

Values. Although participants were required only to describe and analyze the ways educators utilized Twitter, a number of participants included value

judgments. Education students commented positively on the network of educators who supported each other. For example, an undergraduate valued “a quick laugh and a sigh of relief in knowing you're not alone is often just as important as teaching techniques.” Eight participants more specifically valued the sharing of news articles, classroom tips and ideas, and content specific to the grade and area they planned to teach by other educators. Our education students also expressed satisfaction in seeing ideas, articles, and resources that were applicable for them ($n = 21$). For example, an undergraduate explained,

The education accounts I have followed are good at asking questions to make you feel involved. Asking questions and then attaching an article with information has also interested me when looking through accounts. I love that it gets you thinking your own opinion and then informs you on the topic, multiple times my opinions have changed through this.

A graduate science education major further elaborated,

I don't have teaching experience. ... One of the main benefits for me is that the Twitter educational accounts I am following are giving me a glimpse of the real word of the classroom, coming from people that has the best experiences to share.

Participants also mentioned specific recommended accounts as being inspirational or informative. One TC explained that @justintarte “has made me think on several occasions about what type of teacher I want to be for my students.”

Six participants mentioned affordances of Twitter, including the speed and ease of the platform, but 14 education students mentioned a variety of concerns, from the technology learning curve to privacy to the difficulty of remembering to regularly tweet. One preservice teacher mentioned “struggling to be active on Twitter,” while a classmate was “disappointed at the lack of elementary ed accounts.”

Shifts. Overall, most education students were positive about what they viewed on Twitter, and 14 specifically mentioned viewing teacher Twitter more positively after reviewing accounts. An ELA undergraduate confessed, “I've always associated Twitter with things that are just too inappropriate for any other social media platform. However since we've followed the education accounts, it's been totally different.”

Another undergraduate elementary major explained, “At first when receiving the social media project I was not excited. However now that I've gotten into it I see the value of social media and love how twitter is connecting me to other classmates and education professionals.” Participants also mentioned being “pleasantly surprised,” excited to be a “real part of some conversation on education,” glad to find “common ground” with educators, and even though they “hadn't truly considered before,” “it has proven to be extremely beneficial.”

Joining the Conversation (Tweeting With Class Hashtags)

Education students started tweeting the second week of class, but we waited until the last month of our courses to collect Twitter data. We wanted participants to be more accustomed the medium and assignment before studying their tweeting patterns and interactions. During our collection period, our 60 TCs tweeted 400

times using course hashtags. A total of 70 tweets, primarily from educators, also engaged in course conversations using the course hashtag, but we did not code them.

While TCs were expected to tweet at least twice a week using the course hashtag and at least one of those tweets should be a substantive reply to a classmate, we monitored their progress more holistically for consistency and quality than by the week-to-week tweet requirement. In our dataset across classes, the mean ($\mu = 6.6$) for tweets was slightly higher than the median ($\tilde{x} = 6$), which suggested that some students tweeted with more frequency beyond course requirements. Student tweet number ranged from 4 to 30 during the time which we collected tweets.

How and when did students tweet? Twitter allows users to post, curate, and engage with other accounts in a number of ways. All of the tweets in this dataset used a course hashtag. As is evident in Figure 1, our participants utilized these various design functions as they tweeted by primarily composing original tweets ($n = 244$; 61%). These tweets included various messages, including this tweet by a female graduate student: “Learning about your students culture & personal experiences is a must in order to be an effective teacher #edlearn.” A female undergraduate student posted, “Last Wednesday I passed my last exam of the FCTE~ 😎 #NewLiteraciesEd #futureteacher [image of student holding certification exam results].” The former student offered a suggestion for other teachers, while the latter shared a moment of celebration with classmates.

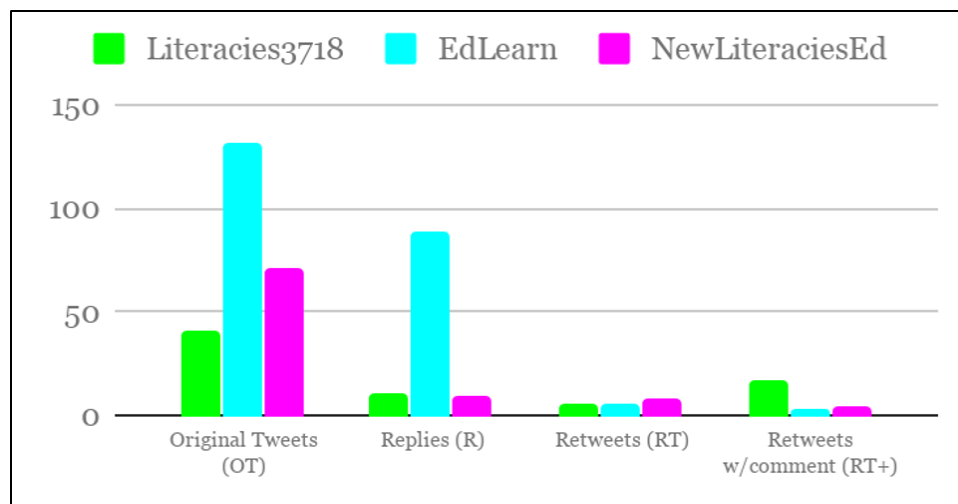


Figure 1. Frequencies of tweets by type and university section.

Participants also replied ($n = 110$; 27.5%) to other class participants and included the pertinent course hashtag. For example, when author Damico shared a book she was reading related to the course, a male graduate student replied with “@damico This is coming out as a movie (@WeAreTheCircle) with @TomHanks and @EmmaWatson #Literacies3718 thecircle.movie/.” Such tweets extended conversations to include topics that were unlikely to come up in the online course.

Students tweets consisted of retweets ($n = 21$; 5.3%) or retweets with an added comment ($n = 25$; 6.3%; Figure 1). Class participants’ tweets were retweeted ($n =$

48; 7.1%), favorited ($n = 522$; 76.8%), or replied to ($n = 110$; 16.2%) to as seen in Figure 2.

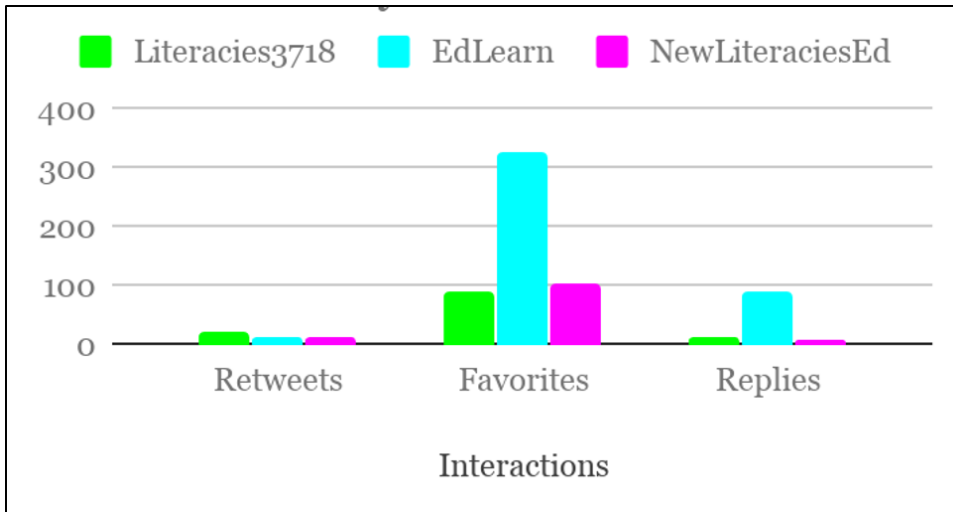


Figure 2. Frequencies of Twitter activity by type of interaction and class.

Education students tended to tweet more around deadlines and physical class meetings (Figure 4). Across three classes 42 students had Sunday weekly deadlines, and the other 18 students across two classes met on Tuesdays, which provided students a reminder to tweet. As Figure 3 illustrates, 35.0% of all tweets ($n = 140$) were tweeted on Sundays and 14.8% ($n = 59$) on Tuesdays. In author Krutka’s primarily online course, TCs tweeted nearly as much on the Sunday course due date ($n = 113$; 49.1%) than on all other days combined ($n = 117$; 50.9%).

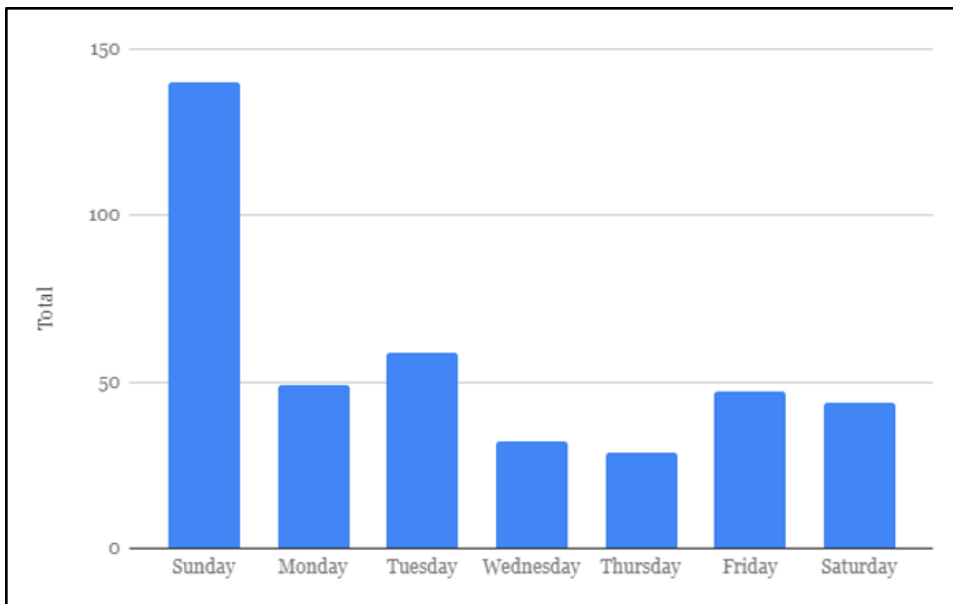


Figure 3. Frequencies of total tweets by day (all classes).

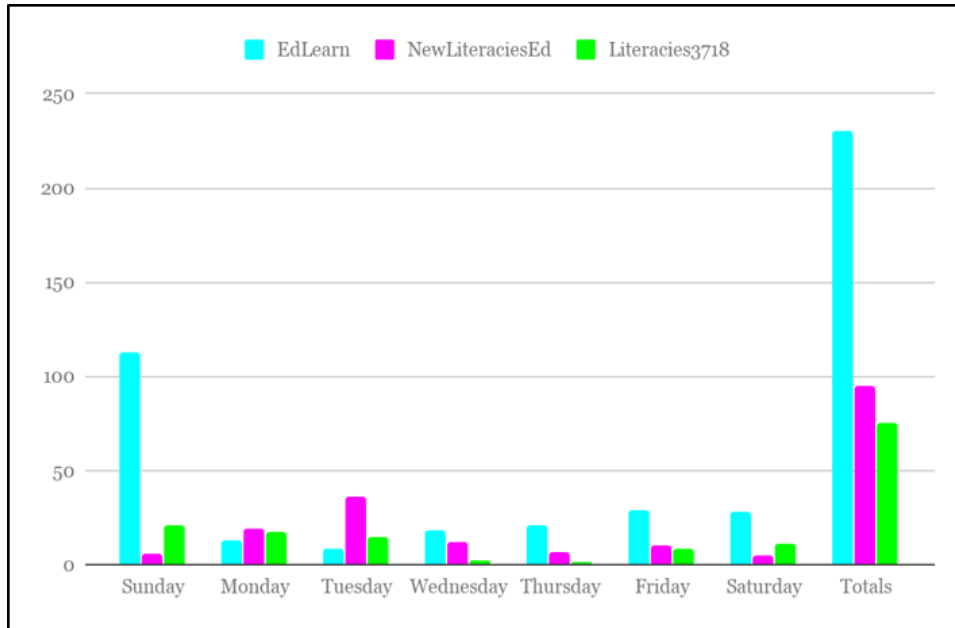


Figure 4. *Frequencies of tweets by day by class.*

Participants in Damico’s digital literacy course tweeted 37.5% ($n = 36$) of their tweets on Tuesday, the day their class met in person, but the online disciplinary literacy course tweeted only slightly more ($n = 21$; 28.0%) on the Sunday due date. Moreover, as Figure 5 illustrates, students tended to tweet primarily between 10 a.m. and 4 p.m. ($n = 133$; 33.3%) or between 6 p.m. and 9 p.m. ($n = 96$; 24.0%).

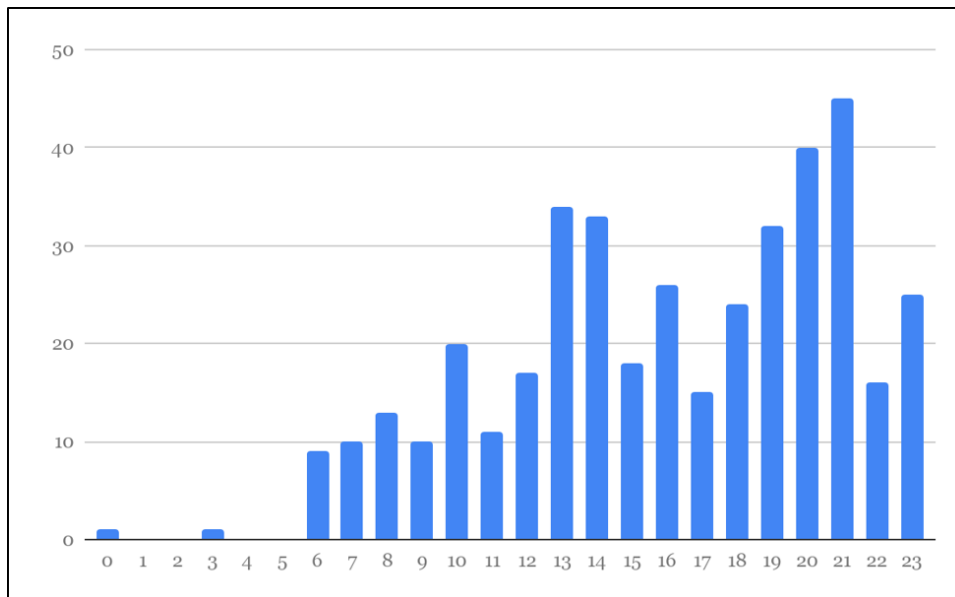


Figure 5. *Frequencies of total tweets by hour (24-hour clock).*

What did students tweet? We also coded participants' tweets to better understand the ways students communicated their ideas within the medium. Students primarily offered commentary by composing text-based messages, which is the most enduring and popular means of communication on Twitter. Eighty-one percent of 400 tweets ($n = 324$) included what we coded as textual media that added some form of commentary. While the class assignment required two substantive posts per week (see Table 1 for explanation), tweets varied from complex messages or questions to posts that were short and simple.

While one participant simply shared, "a student's perspective of the education system: [link to video] #Literacies3718," an undergraduate tweeted a more complex question in posting, "History has shown that fewer tests and more teaching yields better results. Why do you think education strayed from that? #edlearn #edchat."

As Figure 6 illustrates, education students shared blog posts ($n = 44$; 9%), images ($n = 42$; 9%), news articles ($n = 22$; 5%), questions ($n = 17$; 4%), GIFs ($n = 15$; 3%), videos ($n = 11$; 2%), polls ($n = 3$; 0.8%), and official government reports ($n = 2$; 0.5%). One undergraduate woman satirically asked, "Question #1: why didn't whoever hired her know this? #NewLiteraciesEd [link to article]," as she shared a news story of a principal resigning after students investigated her falsified credentials. Another undergraduate student shared a blog post: "Great article on student voice in dig citizenship #NewLiteraciesEd #notanaddon #wherearewe [link to blog]."

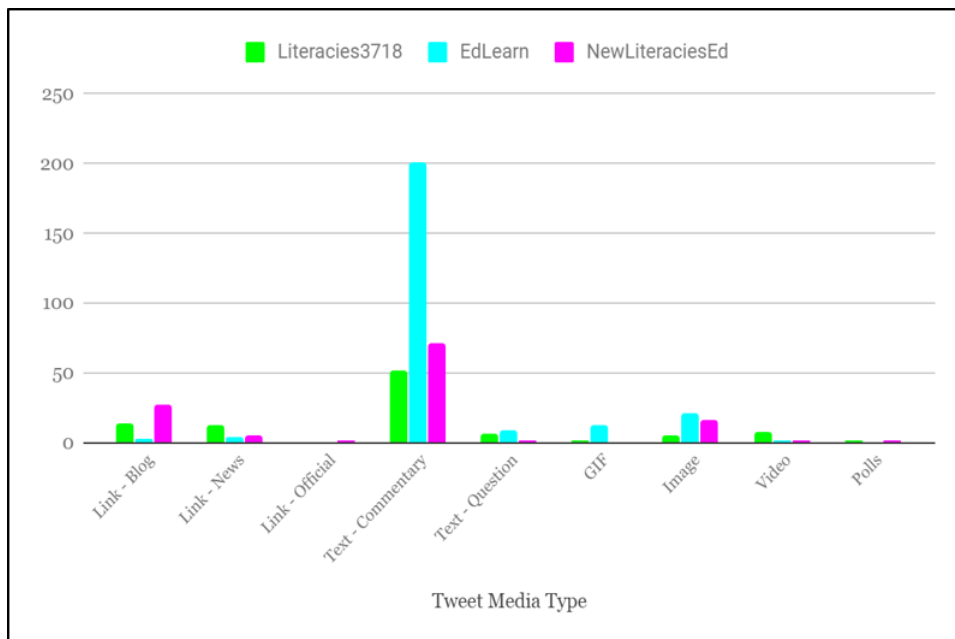


Figure 6. Tweet media form by class.

Participants also tweeted about a variety of subjects (Figure 7). Their tweets most often concerned class activities ($n = 131$; 32.8%), but also included sharing teaching strategies ($n = 113$; 28.3%) and offering praise to fellow class participants ($n = 71$; 17.5%). One male graduate student shared an infographic with tips for how

to incorporate multisensory learning into the content areas: “With each student having their own way of learning, it is crucial to keep these tactics in mind #Literacies3718.”

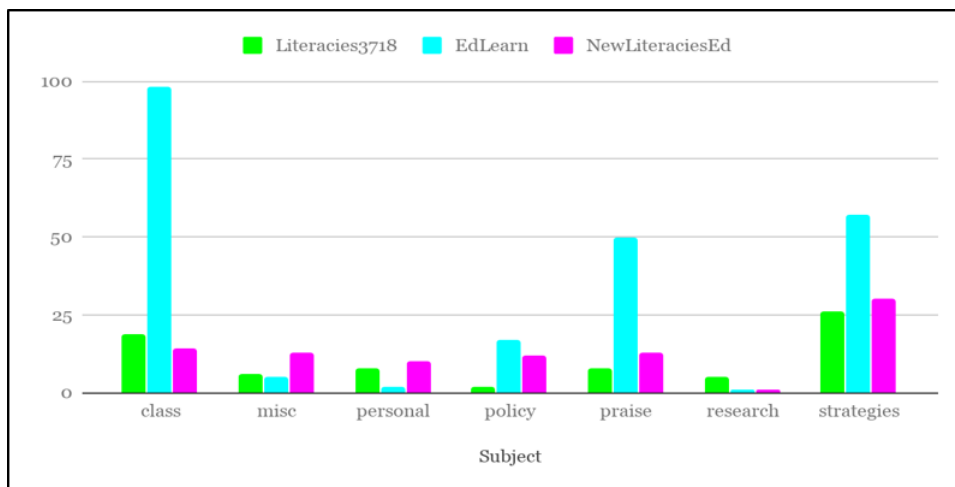


Figure 7. Subjects of tweets by class.

In addition to sharing pedagogical strategies, participants also provided each other with positive feedback. For example, in response to a classmate who mentioned pairing students into reading groups, a female graduate student said, “#edlearn This a great tool to use! My kids did it in elementary and loved the time to show their reading skills off!” To a lesser degree, students also posted on policy ($n = 31$; 7.8%), personal topics ($n = 20$; 5.0%), and research ($n = 7$; 1.8%).

Within the classes, we did not specify or discuss the rhetoric students utilized to compose tweets, and they thus made a variety of rhetorical choices to communicate ideas (See Figure 8). We used a priori codes from Gallagher (2011) to better understand these different language moves that stood out as we reviewed the data. Students primarily posted tweets ($n = 437$ due to coding some tweets more than once) that we coded to:

- express or reflect ($n = 163$; 37.2%),
- inform or explain ($n = 83$; 19.0%),
- evaluate or judge ($n = 81$; 18.5%),
- take a stand or propose a solution ($n = 54$; 12.4%),
- inquire or explore ($n = 34$; 7.8%), and
- analyze or interpret ($n = 22$; 5.0%).

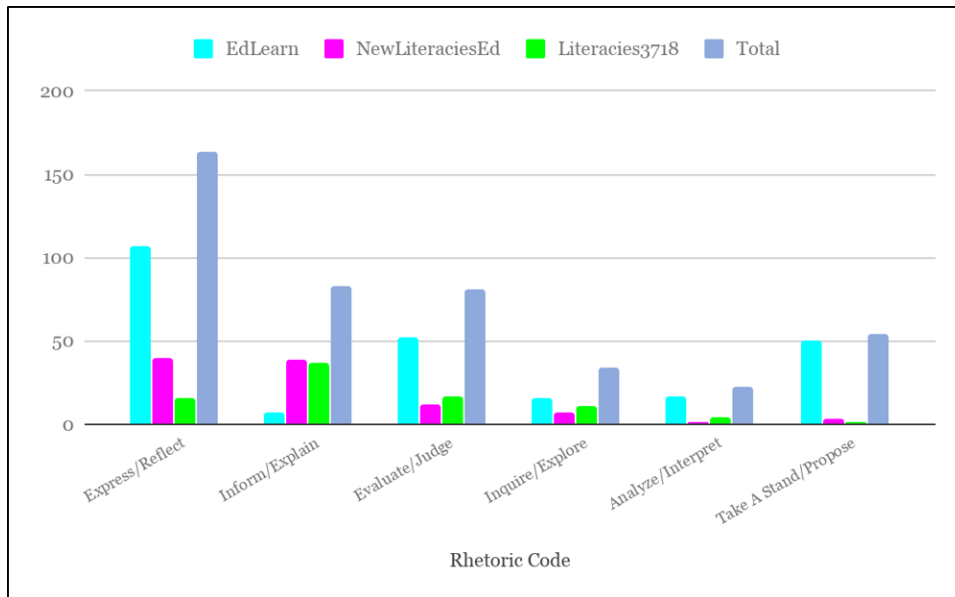


Figure 8. Tweet rhetoric (thematic codes) by class.

For example, a graduate student expressed her opinion on listening to a news story on segregation in schools near St. Louis: “The story of Normandy School is a sad reality I cant [sic] imagine what these students had to go through to receive a quality education #EdLearn.” Another graduate student shared an article from the Library of Congress, stating, “Such a great way to get students engaged in reading in a SS classroom. So many primary sources that give students new perspectives #literacies3718.”

An undergraduate ELA major expressed his thoughts about the controversial young adult show *Thirteen Reasons Why* in posting, “#13ReasonsWhy is a very real look inside of high schools today. Great way 2 get the taboo conversation of suicide going. #newliteraciesed.”

Participants’ Reflections and Plans

Reflection. At the end of the semester, participants reflected on our social media assignment and stated plans for how they would teach about or with social media. Of 196 reflection codes, we identified their reflections as centering around how they learned from others ($n = 39$; 19.9%), means of sharing ($n = 27$; 13.8%), participation in a network of educators ($n = 39$; 19.9%), and concerns and preferences in using Twitter ($n = 81$; 41.3%). An undergraduate student credited the resources shared by her PLN with her growth as an educator in tweeting,

The one thing I have enjoyed about twitter the most is the vast amount of information that is available and easily accessible. ... I follow so many people who post a wealth of knowledge that is so helpful when entering this new field.

Seven students learned “techniques to use in the classroom and stayed up to date with educational news” through their Twitter engagement. In addition to learning

from educators on Twitter, an undergraduate student valued sharing “teaching strategies and tips” that she found on Pinterest with her new Twitter audience.

Students varied in the value they saw for Twitter as a medium for professional engagement. For example, one graduate student expected to dislike Twitter, but eventually expressed value in connecting with professionals via the platform:

I now feel that social media can be used in a productive, informative, and motivational manner. For example, there are so many hashtags to use that connect you to you [sic] area of interest, so you are sure to encounter the people that are knowledgeable about what you are looking for, not to mention they will have connections to others with similar interest that could be helpful. I did use my account strictly for the use of this class, so I did not really venture out to collaborate with other educators; however, that is my intention as I grow in this field. I fully intend to keep my Twitter account and use it as my PLN resource.

Her account appeared inactive, however, when we checked it at 18 and 30 months later.

Students also shared a number of concerns in using Twitter professionally or preferences for other spaces or platforms for such activities. After a semester of Twitter use an undergraduate participant said, “I still feel overwhelmed sometimes when using it, but I know that with time and practice I will get the hang of it and become a professional at using it.”

Another undergraduate expressed concern that even tweeting from his professional account could interfere with job prospects: “Employers look at social media to see what type person you are.” A graduate student highlighted a lack of interest and temporal barriers when he wrote, “I never participated in any moderated chats as they were typically held at inconvenient times and they typically held little to no interest to me.”

Participants also mentioned preferring Facebook, Instagram, Pinterest, and Snapchat to Twitter. On the whole, we coded our 57 participants’ overall reflections as positive ($n = 30$; 52.6%) with only nine participants’ posts (15.8%) focusing on concerns or complaints, and a number of responses as conveying a more neutral tone ($n = 18$; 32.7%).

Planning. We coded 195 open-ended planning statements whereby participants described different ways social media might be a part of their professional careers, including contributing to their future students’ learning ($n = 41$; 21.0%), engaging with networks of educators in a variety of ways ($n = 32$; 16.4%), using social media as a source of professional development ($n = 19$; 9.7%), communicating or updating other community members ($n = 17$; 8.7%), and sharing ideas and the work of others ($n = 10$; 5.1%). Only one participant mentioned engaging in social media activism around policy issues. Fifty-four participants (27.7%) also expressed concerns about future uses along with a variety of preferences for social media use.

Most of the participants ($n = 48$; 82.8%) stated they planned to use social media in their careers in some way and discussed a variety of possibilities and challenges concerning teaching with and about social media in K–12 classrooms. Education students expressed that they could use social media to continue learning about

content, trends, wise practices, finding inspiration, or for just asking questions to other professionals. One graduate student said, “It is important that I stay abreast of new ideas, and Twitter can be a good way for me to do so.” Another reflected on opportunities to stay informed about the field and described her plan to engage in more content creation:

I ultimately hope to foster meaningful connections with others over social media, inform others in matters of interest and importance, and share resources with others who share both my personal and professional interests. Professionally, as an educator, I hope to create more content than I ever have before. I think there is value to sharing media that someone else has created, but there is even greater value in creating original, useful, informative media, and hopefully, I will be able to integrate this content creation into my regular lesson plans so that my students can create content as well.

An undergraduate student admitted, “Using social media with younger classroom isn’t the easier [sic], but it is something that is possible.” She said a “big challenge” to using social media as an elementary school teacher involves

finding the way to use social media in the classroom while at the same time being careful on how to approach that by keeping the students safe from outsiders and inappropriate audiences. I need to be able to find a great way to teach them that not everyone and everything found online is truthful, or accurate.

Similarly, another undergraduate said, “The hardest part of technology in classrooms is balancing the risks and the benefits but if done right, students can thrive.”

We coded numerous posts ($n = 32$) in which participants valued the network of educators with “a vast amount of knowledge to share” from which, as one student put it, she looked forward to “picking their brains and embracing their suggestions and ideas.” Similarly, an undergraduate woman said that she could use social media “to connect with professional educators all over the world and that [she] can use the information that they provide to learn and to better myself as a future teacher.”

A small number of participants also mentioned utilizing social media as a way to share information, lessons, and other happening with parents, guardians, or others outside of the classroom. An undergraduate commented, “Instagram is a great social media site for students and teachers to use when wanting to display artwork, projects, etc.,” that “gives students and their parents a fun way to see what was done in school.”

Participants mentioned using social media to broadcast information ($n = 5$) or to more specifically inform parents, guardians, or community members. One participant reflected on her role in writing: “For me to teach students how to mindfully use social media, I feel like I first must use social media mindfully.”

Even at the end of the course, several education students expressed a lack of confidence in tweeting. One participant confessed, “My tweeting was not very sophisticated. It took me a while to figure out how to include links, photographs,

and even hashtags.” Another stated, “I just didn't know how to write a message that meant something and leave hashtags that were relevant all in the few characters allotted.”

Few participants said that they did not plan to use ($n = 6$; 10.3%) or were unsure about using ($n = 4$; 6.9%) social media professionally. Participants noted that social media could be used with students because it is a familiar medium ($n = 18$) or students could benefit from using social media to build their own learning networks ($n = 25$). For example, an undergraduate surmised that Instagram would be useful for “students and teachers to use when wanting to display artwork, projects.” However, the number of participants who continued to tweet 18 months after the course ended was quite low.

As we completed the analysis, we returned to our participants’ accounts 18 months after course completion and identified only five (8.2%) out of 60 accounts had tweeted about education topics (Table 3). Most participants’ accounts ($n = 35$; 58.3%) were inactive with no educational tweets, or in some cases only a handful of retweets, since the course ended. Some accounts were active but unrelated to education ($n = 9$; 14.8%), two were changed to a private status (3.3%), and seven accounts were either deleted or the username changed (11.4%).

Of the five active accounts, two participants shared activities and accomplishments in their classrooms and three tweeted about education issues. We again checked these accounts at 30 months, and only one account was actively tweeting about educational topics. The educator with the active account tweeted out ideas about education and shared pictures of her students in her elementary classroom participating in activities.

Beyond a couple other students requesting support to purchase classroom supplies, most accounts included no new educational content. None of the participants could be considered heavy tweeters who posted on most days or participated in activities like Twitter chats.

Table 3
Status of Participants’ Accounts ($N = 60$) 18 and 30 Months After Course Completion

Status	18 months		30 months	
	<i>n</i>	%	<i>n</i>	%
Active account with education focus	5	8.3%	1	1.7%
Account with seldom education tweets or active on non-education topics	11	18.3%	8	13.3%
Inactive account	35	58.3%	36	60%
Private account	2	3.3%	3	5.0%
Deleted account or changed handle	7	11.7%	12	20%

Discussion

In designing this assignment, we were inspired by the ways connected educators created participatory cultures in affinity spaces on Twitter and other mediums for their own professional learning (Carpenter & Krutka, 2014; Visser et al., 2014). We, therefore aspired, like other scholars, to scaffold education students into teacher Twitter, encourage informal backchannel dialogues, and encourage PLN growth (Hsieh, 2017; Krutka et al., 2017; Luo et al., 2017).

Our findings provoked us to reassess our Twitter assignment and research in the field that has given less attention to drawbacks of such assignments. While our education students benefitted from relational connections with classmates and interactions with educators and ideas relevant to them, evidence indicates that the assignment failed in other respects. Specifically, our students' pattern of tweeting around deadlines, lack of comfort with Twitter even after months of support, and the inactivity of their accounts all suggest that they neither engaged like connected educators nor were likely to do so later.

Instead of preparing education students to augment their PLNs with Twitter for their future careers, they would likely be better served by fostering meaningful social media experiences in their immediate experiences. These experiences might not require students to tweet on open, commercial social media platforms, but could be accomplished through use of a class account, using private chat features, or other means. To this end, we offer three overarching considerations.

Scaffolding to Professional Social Media Practices Provided Mixed Results

For the most part, our social media assignment required education students to learn or shift their online practices in significant ways. As in previous studies (Colwell & Hutchison, 2018; Krutka, 2014; Luo, Shah et al., 2019), our education students were generally positive about the PLN assignment. However, only a quarter of education students reported using any social media platform professionally prior to the class.

Twitter can be a particularly challenging medium to learn to use as a professional. Moreover, some participants used Twitter and social media for personal or entertainment purposes and, thus, confronted challenges related to habits, context collapse, and preferences. We worked to address concerns, reduce anxieties, and support students early in the semester, yet some students, even after a full semester of activities, assignments, and tweets, still struggled with a learning curve. These students viewed tweeting as a class assignment and did not use the medium like connected educators who choose to engage in participatory cultures.

While some TCs were successfully scaffolded into social media, the challenges were more typical of a required assignment than of participatory and informal engagements. Integrating Twitter into courses may require more instructional time and effort than it is worth for teacher educators.

Participants Valued Relational Connections and Meaningful Experiences

Like in previous studies (Carpenter, 2015; Chen & Chen, 2012; Luo & Gao, 2012; Preston et al., 2015; Solmaz, 2016), our education students expressed value in how Twitter afforded communication with their instructor and classmates. In fact, participants did not necessarily expect Twitter use to improve relationships with their classmates and instructors, but reported so at the end of the course.

Students in primarily online classes valued opportunities for more informal communication. Education students can find 16-week undergraduate and graduate courses challenging, and online connections and conversations throughout the semester seems to offer academic and emotional support as they seek to connect with their studies and peers. Researchers have consistently suggested that interactions and relational aspects of Twitter integration are beneficial, and educators might, thus, integrate Twitter into courses to bolster relational aspects of their course.

This approach could be particularly effective in online courses where students can sometimes lack communication (Luo, Shah et al., 2019). Considering that our participants did not make meaningful connections beyond the class, a more private chat service might be more appropriate for some classes.

Our students valued a space to share their interests and raise concerns that may not otherwise be part of the formal curriculum (Krutka et al., 2014). They also identified with other educators and learning about teaching from their tweets. As other scholars have suggested (Carpenter et al., 2017), social media may provide undergraduates, in particular, a way to develop their identity as professionals, and some of our students suggested as much. Teacher educators may consider centering class connections and immediate interests in assignments that use social media (or more private services), as our participants expressed benefitting from these aspects of the assignment.

Practices Did Not Mimic Informal and Participatory Affinity Space Engagement

Our participants exhibited practices and expressed views across our data more aligned with completing a required assignment than participating in affinity spaces. Even to the end of the semester, education students regularly mentioned forgetting to tweet, experiencing context collapse, and struggling with the platform learning curve. Participants largely tweeted around deadlines rather than across the week.

Instead of approaching the assignment to focus on the professional experiences students found most meaningful to their current concerns and areas of study (e.g., ELA practices and content for ELA majors), they sought to fulfill the outcomes which we, not they, deemed important to their future careers. Although most participants expressed a desire to continue using Twitter for professional purposes, almost none of our students showed any activity at 18 or 30 months later (Table 3).

We do not know whether students' positive expressions about the assignment were aimed at pleasing us as instructors or were simply overly optimistic. The lack of

account activity among participants, however, should serve as a reminder to researchers of the dangers of self-reports upon which so much of the education Twitter literature is built (Tess, 2013), particularly concerning students' optimistic anticipation of future activities (Carpenter et al., 2016; Colwell & Hutchison, 2018; Delello & Consalvo, 2019; Hsieh, 2017; Krutka et al., 2017; Luo, Shah et al., 2019; Luo et al., 2017; Young & Kraut, 2011).

Moreover, our study corresponds with previous research suggesting TCs are unlikely to sustain tweeting after the assignment ends (Carpenter, 2015; Solmaz, 2016). While some students offered intriguing plans for their professional social media uses, others highlighted concerns unrelated to our semester-long assignment and likely grounded in their preconceived notions about social media.

Implications

For researchers, this study suggests a need for more critical and longitudinal studies to determine the pedagogical merit of determining which education students will benefit and under what circumstances, and will they continue to use social media in ways intended by instructors. Scholars should avoid techno-optimist and -determinist approaches to technology that presume benefits across contexts without scholarly evidence or wisdom of reflective practice.

Although our lesson design was grounded in prior research (Krutka et al., 2017), our analysis of data suggests that the social media lesson did not have our intended pedagogical effects on students. We hoped education students would benefit from informal affordances of social media and potentially grow PLNs for their careers, but clearly students completed the assignment because deadlines approached and turned away from Twitter once the class ended.

Notably, researchers should not believe self-reports about future behaviors, as later social media inactivity contrasted with statements about professed plans to continue using the medium. While our education students may return to similar uses later in their careers similar to connected educators from other studies, we do not believe optimistic speculation is a basis on which we should design assignments intended to prepare teachers. Moreover, future research might tease out how to amplify the benefits of connectedness and meaningful curricular engagements while also mitigating shortcomings (e.g., extended learning curve and social media anxieties).

The initial aim of this assignment was to better understand how we might scaffold education students into social media augmented PLNs for their future careers. Exploring social media with education students can be worthwhile. However, our data suggest we were misguided to anticipate their future uses of social media.

While entire classes dedicated to building PLNs could likely wade through the many lingering shortcomings from our assignment, educators attempting to integrate social media education within classes might consider focusing not on future uses, but on fostering meaningful immediate experiences to students. As John Dewey (1894/1971) said early in his career, "cease conceiving of education as mere preparation for later life, and make it the full meaning of the present life" (p. 50).

Twitter or more private platforms can be structured to engage around students' present teaching interests and concerns while also allowing them to speak about education on their terms. With such thoughtful spaces, education students can bring up novel topics, potential misunderstandings, and questions that may not arise in formal environments where instructors dominate course content and structure (Krutka et al., 2014). Lemon (2019), for example, was closely attendant to subject and course-specific reasons for utilizing Twitter to learn "with the arts, through the arts." She provided necessary scaffolding, and utilized the "space to connect, share, and inquire" (p. 82).

Our students found value in relational, idiosyncratic, and educational tidbits from their Twitter feeds. Yet, class-required social media experiences did not yield the same types of participation as the voluntary, informal social media experiences described by tweeting educators (Carpenter & Krutka, 2014; Visser et al., 2014). More so than scaffolding education students into lifelong PLNs on social media, we realized later that we were engaging them into professional dispositions as educators who regularly engage in dialogue and grow in practice. For many of our participants, these engagements in their near futures will not happen on Twitter, if ever, as is evidenced by the abandoning of accounts once the course ended.

One graduate student suggested that it "is easier said than done" to continue engaging in professional learning on social media once the assignment ends. Twitter and other social media platforms might have a place in teacher preparation, but the assignments must hold value in the present experiences of students, not for some future ends.

Researchers tend to write about Twitter integration in ways that presume future uses – typical of the hope, hype, and disappointment cycle common to uses of technologies in education (Cuban, 1986; Selwyn, 2017). For example, Luo et al. (2017) pointed to its "potential" and "new promises" to facilitate communication on a "global scale" (p. 226), even though these claims are not grounded in evidence. Their own research suggests "both students and instructors had difficulty keeping track of tweets or paid special attention to specific tweets" (p. 227).

Educational technology research has long been prone to over-optimism, and Twitter integration seems to be the latest example. Instead of integrating social media use into formal education settings, educators and researchers might do just as well to focus on critically interrogating social media platforms and companies to consider the ways social media structures communication, exploits users and extracts their personal data for profit and causes other harms to individuals and democracies (Krutka et al., 2019).

Conclusion

We approached this study like many educators and researchers who have optimistically promoted social media integration as a way to encourage informal communication and build PLNs for careers. Although students benefitted from the relational and relevant aspects of our social media assignment, education students did not use social media in the participatory and ongoing ways we hoped they would.

Teacher educators should abandon overly optimistic hopes and critically consider whether integrating social media is meaningful to students in the short term.

Educators can design educational activities where their students can post what is meaningful to them in their immediate professional contexts, not what we believe they will need in their forthcoming careers. Moreover, educators and researchers should consider not merely integrating social media, but interrogating these mediums to better understand their effects on individuals' lives, democracies, and education. Before assigning students to tweet in the future, this study has pushed us to more thoroughly question, should we ask students to tweet?

Acknowledgment

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