

# Sharing and Self-promoting

## An Analysis of Educator Tweeting at the Onset of the COVID-19 Pandemic

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*Researchers have documented an array of ways Twitter hashtags offer digital spaces where educators can connect around interests and needs. During the early days of the COVID-19 pandemic, educators tweeted using various pandemic-related Twitter hashtags. In this study, we analyze data from two such hashtags: #remoteteaching and #remotelearning. We first data mined more than 36,000 tweets and then analyzed a random sample of 1,148 tweets and the accounts which sent those tweets. Our results suggest that the hashtags functioned as spaces in which a variety of education stakeholders engaged in activities that included knowledge sharing, social sharing, and information broadcasting. Alongside and sometimes entangled with such sharing, there was also a great deal of self-promotion. We discuss how these spaces appeared to offer potential benefits to educators navigating the transition to remote teaching but also consider how the presence of self-promotion may suggest downsides to such social mediums. We conclude with implications of these findings for education stakeholders and future research.*

## 1. Introduction

The COVID-19 pandemic disrupted educators' lives in many ways. Teachers faced challenges related to shifts in their teaching, societal inequities intensified by the pandemic, and managing their own professional loss and stress [59]. The rapid change from in-person to emergency remote teaching [88] increased the need for targeted and timely professional development (PD) for educators [29]. However, teachers faced the abrupt transition to remote learning often without

their typical access to many forms of formal PD, such as in-person courses, instructional coaching, or professional conferences. Many teachers found themselves in the proverbial deep end of the pool and some turned to social media for just-in-time professional activities to stay afloat.

In this paper, we build upon preliminary research on tweets posted by teachers to two hashtags: #remoteteaching and #remoteteaching [93]. Herein, we expand and deepen our analysis to include a larger dataset and all types of users (e.g., organizations, for-profit businesses, parents) who tweeted with these hashtags. The purpose of this study is to investigate the dynamics of these hashtags, including who participated, the structure of tweets posted, and the content of tweets. We address the following overarching research question: what was the nature of the #remoteteaching and #remoteteaching spaces in the early days of the COVID-19 pandemic? We seek to offer insights for educators and education stakeholders regarding the opportunities and challenges for just-in-time professional activities associated with social media platforms [24,27]. Furthermore, we consider the affordances and constraints of social media during a time of change and crisis.

## 2. Background

Researchers have identified multiple potential benefits to educators' use of various social media platforms, including Facebook [77], Instagram [95], Pinterest [66], Reddit [96], and Twitter [107,28]. Social media can be used to find, share, and discuss education ideas and resources, with educators functioning as both knowledge givers and receivers [77]. Since social media is not geographically or temporally bound, professional learning via social media can potentially happen at almost any time of day and from any location ([66,92]). Thanks to the access it provides to individuals beyond their own schools, many teachers use social media to build networks, sustain relationships, and receive emotional support [24]. Social media use can also serendipitously expose educators to ideas and perspectives that they otherwise might not encounter in their local schools or districts [35]. Although PD has often been framed as content delivery, social media use for PD can also involve content generation and curation, with teachers themselves creating some content through independent and collaborative work [54].

Alongside the potential benefits of educators' social media use, there are also associated barriers, complications, obstacles, and risks [38,89,97]. While social media might offer increased access to content, face-to-face professional learning opportunities may be better suited to developing trusting relationships among educators and can be more deeply rooted in school communities. Additionally, the quantity of content on social media can be both beneficial and overwhelming. Wading through the glut of information available, educators may struggle to find the resources they need and could come to find their social media usage a waste of their limited time for professional learning [71,98]. Spam can clutter the traffic on some popular education-focused Twitter hashtags [99]. The lack of traditional content vetting and regulation on social media also raises quality concerns. For example, Sawyer and colleagues' [65] research reported that popular elementary mathematics teaching resources posted on Pinterest involved only lower-level cognitive demands, and Rodriguez, Brown, and Vickery's [61] analysis detailed how teacher candidates used online resources with problematic historical narratives about the U.S. Civil Rights Movement.

Educators who employ social media can also experience identity-related challenges. They may feel pressured to present themselves in idealized forms [60]. Teachers can struggle to manage boundaries between personal and professional worlds and feel obligated to be always available to communicate with colleagues, students, and families [19,67]. The common highlight-reel quality of self-presentation on social media raises questions around authenticity and can contribute to unhealthy social comparisons [84,95] and unrealistic expectations regarding what is a "good enough teacher" ([52], p. 30). Although teachers can make their practice public via social media, what they are willing to share may be constrained. For example, they may self-censor their posts for fear of other people's reactions [94,97,98]. Teachers may be more willing to discuss thorny subjects or try innovative practices in more private contexts [42]. Each communication medium shapes the kinds of messages users share [44], and different social media services present different affordances and constraints for educator professional learning. While Twitter's open nature can invite broad participation, it may also limit the content users share and how they discuss it. Twitter's limited character count may make it easy for quick interactions, but it can also reward users for more outrageous and overly simplified claims that

generate likes and retweets. Although social media spaces for teachers are often relatively collegial, toxic subcultures, racism, networked misogyny, and other forms of cyberviolence have been all-too-common features of social media, and both explicit and implicit forms of discrimination can impact educators' experiences of educational spaces on Twitter [33,47,109].

## 2.1. Educator Twitter affinity spaces

Scholars have sought to understand social media, including Twitter, as *spaces* in which educators participate in professional activities [41,45]. In the case of open, for-profit social media such as Twitter, we prefer conceptualizing the phenomenon through the concept of space rather than with concepts of *community*, such as Community of Practice [39] and Community of Interest [31]. We agree with Gee [25] that discriminating among who should be included as a community member and who should be excluded can be both challenging and distracting. Furthermore, the ad hoc and potentially ephemeral nature of the hashtags we studied rendered a community lens inappropriate [6].

We therefore draw on Gee's [25] affinity space concept in this study. Gee defined affinity spaces as digital, physical, or blended locations in which informal learning occurs and common limitations associated with time, hierarchy, and geography are mitigated. Individuals are attracted to affinity spaces by a shared interest or endeavor. Although digital technologies are not a prerequisite for affinity spaces to exist, these technologies arguably can facilitate the creation and expansion of such spaces. Scholars of education and social media have used the affinity space concept to explain or frame analyses of Twitter hashtags in previous studies (e.g., [62,100]). This lens has proven appropriate to studying the unbounded and fluid nature of participation common with Twitter hashtags. Moreover, researchers have recently demonstrated that different hashtags can host distinct kinds of affinity spaces for educators' professional Twitter uses [26,28,101].

### 2.1.1. Who participates in educator Twitter affinity spaces

The open nature of Twitter means that anyone, within or outside of education, can participate in finding, sharing, and discussing information on the platform. For example, teachers, instructional support staff, and principals from various schools and districts can all contribute to and learn from Twitter conversations (e.g., [8,12,63]). Twitter also allows teachers to make their learning and practice public in ways that can benefit them and others [36,40], such as parents who had to support their children's learning from home due to the COVID-19 pandemic [46] and might have looked to educators' tweets for, information, advice, and support (see [15]). Wang [85,86] demonstrated that many education authorities in public-facing roles, such as superintendents and state education agency staff, have used Twitter to share information with communities and constituents.

Participation in affinity spaces is frequently motivated by shared interest in a topic and intrinsic enjoyment of the interactions. Education stakeholders from various roles can potentially participate in sharing and discussions that include a range of educational experiences and expertise. For example, Rosenberg and colleagues [63] studied #NGSSchat, a hashtag associated with the Next Generation Science Standards, and found that in addition to teachers, various education researchers, education organizations, education institutions, and media accounts also contributed to the hashtag traffic.

Although some parties engage with affinity spaces because they share interest in a common endeavor with other users, others may participate even if their motivations related to that endeavor may not solely lie in engaging around the topic. For instance, some educators may use affinity spaces for self-promotion and online *teacherpreneurship* (i.e., the sale of education resources by educators through online educational marketplaces) rather than from a desire for professional learning [69,71,98]. Teachers and teacherpreneurs alike may both seek to produce, share, and find curriculum and teaching ideas, but with different end goals in mind. Teacherpreneurs, education influencers, and even traditional curriculum publishing houses tend to use social media to market their wares in both direct and in-direct ways [69], [70], [71],102] that some users may find distracting [98]. Education institutions and organizations, businesses or individuals, and parents can also all potentially post to Twitter hashtags and may bring commercial or other motivations to such spaces.

While various stakeholders can interact with teachers through Twitter, there is limited research looking holistically at who engages in educator Twitter affinity spaces in times of crises. Previous studies generally focus on Twitter engagement by specific groups of people (e.g., teachers, principals, superintendents, or parents). For example, Rehm and colleagues [57] have recently published an analysis of school leaders' uses of Twitter during the COVID-19 era. Although such research offers valuable contributions to the field, understanding who the many actors are using education hashtag spaces can help scholars and education stakeholders uncover the multifaceted network of influencers within a single affinity space. Furthermore, there is only limited knowledge of how the various communication means and ends of such different actors might clash and commingle in educator hashtag spaces. This study therefore advances the knowledge base by investigating the full range of users who used two popular education-related hashtags.

### 2.1.2. How users participate in educator Twitter affinity spaces

Content on Twitter can be structured in various ways. Twitter users can post their own content in *original tweets*, *reply* directly to other users' tweets, *retweet* other users' content by broadcasting it to their followers, and *comment tweet* by retweeting other users' content and adding their own thoughts. Original tweets generally consist of text, visuals (e.g., images, memes, gifs), videos, links, hashtags, or any combination of those. Users can point to content found elsewhere on the Internet by including hyperlinks to sites outside of Twitter [17], which allows for the referencing and sharing of ideas beyond those contained within the character count of single tweets (i.e., 280 characters). For instance, teachers might tweet to recommend a particular article and include a link to the article. Users can also embed information in images or videos to overcome the character limit, like when a teacher tweets an infographic filled with text or presents a video in which they talk through their experiences in depth. Images and videos may also be used in social media spaces to invite interaction and establish conviviality and friendliness among users [79] or to make teaching practice public in direct ways [40].

Twitter hashtags play an important part in educators' Twitter use [28,87,101], in a variety of contexts [27,58]. Although the relentless and massive quantity of content on Twitter has resulted in comparisons to "drinking from the firehose" ([9], p. 413), hashtags can, in some cases, help users to partition off relevant and more manageable streams of content. Hashtags can facilitate connections and collaborations among educators who share common interests and needs but might not otherwise meet or interact. For example, Wesely [108] studied how geographically distant World Language teachers used a Twitter hashtag to interact in ways that contributed "to sustained and significant teacher learning" (p. 305). Twitter hashtags can enable various forms of in-group communication among members of a profession, and also more outward facing communication, what Acquaviva [2] described respectively as *intercom* and *megaphone* hashtag uses. While various technologies support participation in micro- and meso-level communications, hashtags help tweets reach beyond users' existing follower-followee networks [7] and can therefore create more opportunities for educators to participate in macro-level conversations on education topics. However, popular educator hashtags can also become targets of spam [99] and feature large amounts of self-promotion [71], especially by men [33].

### 2.1.3. Why users participate in educator Twitter affinity spaces

Since its early days, Twitter has been identified as having potential educational applications, including for educator professional activity. Forte, Humphreys, and Park's [18] content analysis of education-related tweets described multiple forms of engagement on Twitter, including sharing information, providing advice, discussing policy, promoting events, self-promotion, asking or responding to questions, and sharing educational philosophies. Although early research on the use of Twitter in education was concentrated in higher education contexts (e.g., [32]), several more recent studies highlight Twitter's capacity to support PK-12 educators' work, including resource sharing and facilitating interactions among diverse stakeholders [27]. For instance, Carpenter and Krutka's [100] survey research indicated that many participants valued Twitter's capacity to reduce various kinds of isolation and that the medium facilitated personalized, positive, and collaborative professional learning.

Twitter can enable just-in-time professional learning by hosting flexible environments that allow teachers to interact with colleagues and experts who can help them with their current questions and provide "on-demand" and "real-time"

support ([103] p. 716). Such flexible spaces would appear to offer some value during the uncertainty and disruption caused by crises [27]. For example, while many conferences have been disrupted by the COVID-19 pandemic, social media tools have remained accessible throughout the pandemic and offered a source of ongoing opportunities for learning [93]. Because of features such as timeliness and personalization, Twitter would seem to have some potential to facilitate educator PD during crises. However, education stakeholders' Twitter use during crises has received only limited and preliminary attention [29], [93].

Although Twitter hashtags often develop in response to current events [6], in education research, prior studies have primarily focused on relatively established and quasi-permanent hashtag spaces [71,87,101] and those associated with specific content areas (e.g., [108]). For example, Parrish and Martin [51] investigated a long-running math-focused hashtag (#MTBoS) and reported that it provided teachers with opportunities to learn how to teach math in ambitious and cognitively demanding ways. An exception in which an ad hoc hashtag was studied can be found in Greenhalgh and Koehler's [27] exploration of how 3,598 Twitter users across multiple countries employed a hashtag to create a temporary space that supported French teachers preparing to discuss the 2015 Paris terrorist attacks with their students. We build on Greenhalgh and Koehler's work by investigating hashtag spaces that similarly have offered opportunities for educators to discuss how to respond to an unanticipated disruption to their work. The context of Greenhalgh and Koehler's study was, however, a particular tragic episode with a relatively less direct and less pervasive impact on teachers' work. By contrast, the COVID-19 pandemic has been a protracted crisis that has arguably upended the very nature of schooling and educators' lives in general.

## 2.2. Educator PD in times of crises

Although research on how educators respond to crises on the scale of COVID-19 pandemic is lacking, studies on educators' experiences with local disasters inform the present study. Researchers consistently find that teachers facing crises need new and varied kinds of professional support. In the aftermath of trauma, teachers require PD in order to manage their own stressors and those of their students [4,30]. In some scenarios, schools have to function as the de facto mental health support system for many children [11]. Ubit and Bartholomaeus' [76] research in the wake of the 2004 Indonesia tsunami detailed how teachers needed PD that helped them to work with young people affected by the natural disaster. During crises, teachers are often expected to focus on the needs of their pupils, rather than their own well-being [43]. In crisis scenarios, PD demand can be high, and traditional PD mechanisms can struggle to adapt to unpredictable contexts.

Teachers' professional needs and experiences are often quite idiosyncratic, and this is likely the case during crises [49,50]. For example, while synchronous PD events may work for teachers without young children, teachers who are trying to care for young children in their own homes may prefer asynchronous opportunities. Social media could provide some of the flexibility and personalization that would benefit educator PD in crisis contexts. Research that addresses the opportunities and barriers associated with social media use for PD during crises can therefore benefit the field.

To address these gaps in the literature and explore the professional learning opportunities available via Twitter, our research question was the following: What was the nature of the #remoteteaching and #remotelearning spaces in the early days of the COVID-19 pandemic? We divided this larger question into subquestions:

- RQ1. What types of accounts tweeted in these spaces?
- RQ2. What was the structure of the tweets?
- RQ3. What appeared to be the purposes of the tweets?

## 3. Method

In this descriptive mixed-methods study, we analyzed tweets from two hashtags that attracted substantial traffic during the onset of the COVID-19 pandemic: #remoteteaching and #remotelearning. These two hashtags were used as common hashtags in the U.S. between late February and April 2020 and attracted more usage than other hashtags dealing with teaching during the pandemic (e.g., #triageteaching, #pandemicteaching) during that time. These ad hoc

spaces increased in popularity in response to the COVID-19 pandemic and were thus distinct from some related hashtags like #onlinelearning and #onlineteaching that were in use prior to the COVID-19 pandemic and may have had previously established norms and practices.

### 3.1. Data collection

We collected tweets from early-March to mid-April using the Twitter Search API. Excluding retweets, our search returned 36,788 tweets from 14,895 accounts for analysis. We excluded content that the Twitter Search API identified as retweets. We did this because although retweets increase the potential reach of tweets by sharing them with a larger audience, they do not directly add new content to a hashtag space. Retweets were not, therefore, germane to our research questions.

In our earlier work [93], we focused on users who defined themselves as PK-12 teachers in their profile. However, in this study, because of our broader research question, we did not narrow our focus in the same way. For our manual analysis, we selected a representative sample of tweets by utilizing the random ordering function in a MySQL query and returning the first 1,200 results. For these 1,200 tweets, we later downloaded information about the number of retweets and likes that each received. At the time of data analysis, 52 of the tweets had been deleted or were no longer available, resulting in a final data subset of 1,148 tweets that were sent from 960 unique Twitter accounts.

### 3.2. Data analysis

We analyzed the sample of 1,148 tweets in ways that aligned with our research questions. To bolster trustworthiness and credibility [75], we employed investigator triangulation by having at least two researchers involved in all qualitative data analysis [16]. In our earlier analysis of a smaller sample of tweets from the same two hashtags [93], we inductively identified codes through an iterative process, informed by the literature on educator PD via Twitter. This process resulted in a set of 12 codes that were primarily oriented towards categorizing the content of the tweets (Appendix Table A1, *Initial Codes for Tweet Content and Twitter Account Roles*). In this study, we began coding the new sample of tweets informed by this earlier codebook, although we maintained an openness to change existing codes and add new codes. Initially, two coders separately read 100 tweets each before meeting to compare their first impressions of whether the prior codebook was appropriate. Given the wide variety of education stakeholders that were tweeting using the hashtags, we also coded the roles of the Twitter accounts sending each tweet as well as the content of the tweets. An initial set of nine roles associated with accounts was identified based on the first batch of tweets read (Appendix Table A1).

Three of the researchers engaged in three cycles of independently coding subsets of 50-100 tweets and then meeting to discuss our coding, resolve discrepancies of interpretation, and refine the codebook. During one of these meetings, the three researchers also collaboratively coded a set of tweets together in order to build consistency in our interpretations of the codes. The fourth member of the research team, while not directly involved in coding, participated in some of the discussions regarding the codes and their meanings. Due to the interpretive nature of our coding process, we relied upon intensive discussion to reconcile discrepancies and reach consensus on codes, instead of an interrater reliability statistic [64]. After these three rounds of coding and discussion, we achieved substantial agreement regarding our understanding and application of the codes, and settled on our codebooks (see Appendix Table A2,A3,A4). The final codebooks included 11 codes for role types, and an additional three non-exclusive subcodes that could be applied to individual educator roles (Appendix Table A2, *Final Codebook for Twitter Account Roles*). There were 22 codes that related to the content of tweets, nine of which were codes drawn from the aforementioned initial 12 codes used in Trust et al. ([93]; Appendix Table A1). Seven of the 22 codes referred to more basic information about the tweet structure that could be relatively objectively coded, such as if the tweet was a comment tweet or included a hyperlink (Appendix Table A3, *Final Codebook for Tweet Structure*). The remaining 15 of the 22 codes for tweet content pertained to purposes; we grouped these into four categories (Appendix Table A4, *Final Codebook for Tweet Content*). As an example of how the code structure developed, a broad initial code related to *discussion* was narrowed to focus on discussion that occurred in synchronous Twitter chats, given that other markers of discussion (such as a tweet being a *reply* tweet) were reflected in other codes. With the codebook finalized,



two of the researchers recoded tweets that had been coded with earlier versions of the codebook and completed the coding of the remaining uncoded tweets.

In addition to coding tweet content, we also looked at the user profiles for the accounts that posted each of the tweets. In some instances, the profile provided sufficient information to identify the role associated with the account. However, we sometimes needed to do additional exploring to determine users' roles. For example, many Twitter profiles included a hyperlink to a website, such as a LinkedIn page, where we found the necessary information. In some instances, we used an Internet search engine and available information in the Twitter profile in order to determine users' roles.

Finally, we used the statistical computing software R [55] to conduct multiple chi-square tests of independence, with Yates' continuity correction, in order to test whether certain kinds of tweets—in terms of the content and the type of account—were more or less likely to have been liked or retweeted. We did this in part because Twitter's algorithm pushes content that receives more likes or retweets. This impacts the kinds of tweets people see and, for some users, impact the ways they post (e.g., posting images to garner more impressions).

## 4. Results

Our analysis of the dataset demonstrates that #remoteteaching and #remotelearning were multifaceted spaces that featured a wide variety of content posted from accounts that represented a diverse range of education stakeholders and motivations. In the following sections, we will detail our findings in relation to each research question.

### 4.1. RQ1. What types of accounts tweeted in these spaces?

In total, 960 unique accounts posted the 1148 tweets in our sample. Almost half of the tweets ( $n=549$ ; 48%) were sent from accounts belonging to individuals working in PK-12 schools, including tweets from PK-12 classroom educators ( $n=365$ ; 32%), school and district support professionals ( $n=122$ ; 10%), and administrators ( $n=62$ , 5%). Additionally, 5% ( $n=60$ ) of the tweets came from accounts belonging to higher education professionals, including faculty from a range of disciplines (e.g., civil engineering, teacher education, history), faculty development specialists, and university administrators.

In addition to the primary job roles of the PK-Higher Education accounts, some individuals also were identified in three particular ways: Edtech Tool Ambassador, Certified Educator, or Edupreneur (Table 1). For example, one profile read, "Math Teacher | Google Trainer | EdPuzzle Coach | Flipgrid, Genially, Wakelet, WeVideo & Seesaw Ambassador" - this educator was an ambassador for multiple tools and certified in a particular educational technology (i.e., Google Trainer). There were also practicing educators that focused on selling their own books, materials, TeachersPayTeachers resources, or services; we labeled these accounts as *edupreneurs*. For instance, text from one profile stated, "Co-Author of [Title Removed for Anonymity], Global Presenter, Keynote Speaker, #MIEExpert [Microsoft in Education] and Fellow." In our categorization, we distinguished such individuals who engaged in entrepreneurial activities while working as a PK-12 educator from accounts associated with for-profit education-related businesses, consultants, or individuals who were full-time employees of such businesses. It was slightly more common for school and district support professionals to be an educational technology tool ambassador, educational technology tool certified educator, or edupreneur when compared to teachers. It was also more common for support professionals and teachers to include these designations in their profiles than it was for administrators (see Table 1). As seen in these examples, some accounts received more than one of the three subcodes.

Table 1. Accounts with Edtech Tool Ambassador, Certified Educator, or Edupreneur Designations in Profile

Empty Cell	Total	Edtech Tool Ambassador		Edtech Certification		Edupreneur	
Role	n	n	% of total for role	n	% of total for role	n	% of total for role
Teacher	365	65	18	55	15	41	11
Other PK-12 School Role	124	24	20	22	18	23	19

Empty Cell	Total	Edtech Tool Ambassador		Edtech Certification		Edupreneur	
Administrator	61	3	5	2	3	5	8
Higher Education	60	3	5	5	8	2	3
Total	610	95	16	84	14	71	12

Approximately one-third of tweets ( $n=378$ ) came from accounts associated with non-profit or for-profit individuals or organizations. Most of these tweets ( $n=299$ ) came from accounts that represented for-profit individuals or organizations, while tweets from non-profit organizations (e.g., Advocates for Children of New York) or individuals who worked for non-profit organizations ( $n=79$ ) were less common. For-profit organizations were mostly educational technology companies (e.g., EdPuzzle) or companies that provided educational services or curriculum materials (e.g., McGraw Hill PreK-12). Among the accounts with more than one tweet in our random sample, the education technology companies Buncee ( $n=7$ ), ClassDojo ( $n=9$ ), and Microsoft Education ( $n=16$ ) contributed the most tweets. For-profit individuals were most commonly employees of educational technology companies or those who had prior experience in education and then shifted into consulting roles.

The sample also included accounts for schools, higher education students, and parents. School accounts contributed 9% of the tweets in the dataset. The majority of these tweets came from accounts associated with individual public schools or school districts ( $n=71$ ; 6%), such as P.S. 215 Brooklyn and Lakota Local Schools. A smaller number of tweets came from accounts that belonged to private schools ( $n=36$ ; 3%). Although many educators are also parents, some tweets ( $n=46$ , 4%) were sent by users who appeared to be posting solely from a parental perspective. Tweets from higher education students ( $n=16$ ), many of whom studied education, made up 1% of the tweets in the dataset. In sum, the findings indicate that these hashtags were open public spaces utilized by a wide array of individuals and organizations.

## 4.2. RQ2. What was the structure of the tweets?

The majority of tweets in our sample were *original tweets* ( $n=763$ ; 66%). The dataset also included two kinds of comment tweets as well as reply tweets. Many tweets also featured embedded hyperlinks and/or media. Nearly one-fifth ( $n=220$ ; 19%) were retweets with added comments, also known as *comment tweets*. For example, one individual retweeted a post about assessment and included a comment: “Great perspective to consider as we move into remote learning environments! #assessment #remoteteaching.” We coded separately some of the *comment tweets* for which the comments were not substantive; we considered these to essentially function as retweets ( $n=80$ ; 7%). Such posts seemed to be solely for the purpose of increasing viewership of an original tweet. For instance, an individual might retweet a relevant teaching resource and simply add hashtags like #remoteteaching or #remoteteaching.

Less than 10% ( $n=92$ ) of the tweets in our random sample were replies sent using the “reply” function of the Twitter interface. Twenty of these replies (22%) were posted as part of Twitter chats, which feature synchronous posting on Twitter around specific questions (see [22]). The remaining tweets in this category were either a single reply or a thread of replies by a single individual. Twenty (22%) of the single reply tweets were posted by education technology companies, including 14 from Microsoft, two from Buncee, and two from WeVideo. For instance, in reply to an educator who wrote about setting up Microsoft Team meetings for remote learning, @MicrosoftEdu wrote, “We are excited to see how you and your students enjoy Microsoft Teams.”

Tweets—whether original posts, retweets, comment tweets, or replies—often featured embedded media directly uploaded by the user, including graphics, gifs, memes, photos, or videos. Slightly more than half ( $n=641$ ; 56%) of the tweets included embedded media. Graphics were generally used for promoting events (e.g., event flyers) or sharing information visually (e.g., infographics), while gifs and memes tended to be used for humor or affect. Embedded photos ranged from images of student work and educators’ remote teaching spaces to stock photos that added visual appeal. Embedded videos, which are videos created by the users and uploaded directly to Twitter, were also popular. These ranged from humorous short segments (e.g., a teacher trying to sing along to the Broadway musical *Hamilton*), to information broadcasting, to technology tips and tricks.



Almost 40% of the posts ( $n=472$ ) included hyperlinks to external websites. When tweeting a hyperlink, Twitter's algorithm will often display a visual from the external website or the hyperlinked video. However, only one-third of tweets featuring hyperlinks ( $n=157$ ) included such an automatically inserted image or video. By contrast, 43% of the hyperlinked tweets ( $n=205$ ) included embedded images or video purposefully uploaded by users. This may be because users wanted to display a visual different from the one Twitter selected from their external site (e.g., showcasing an event flyer) or because Twitter did not display a visual with the hyperlink.

### 4.3. RQ3. What appeared to be the purposes of the tweets?

Upon exploration of the tweet content, we identified four overlapping themes encompassing the purposes for posting on the #remoteteaching or #remotelearning hashtags: *professional knowledge sharing*, *social sharing*, *self-promotion*, and *information broadcasting* (see codebook Table A4 in Appendix). Individual tweets could include multiple purposes. For example, some tweets featured both professional knowledge sharing and self-promotion.

In approximately half of the tweets ( $n=569$ ), users shared professional knowledge. Slightly more than one-third of these tweets ( $n=196$ ; 34%) focused on digital tools and apps. For example, many users tweeted tips, tricks, or learning resources that might help educators with their shift to remote teaching (e.g., "Guide for using Google Classroom [hyperlink]"). The most frequently discussed tools were: Microsoft ( $n=30$ ), Google ( $n=34$ ), Flipgrid ( $n=14$ ), and Zoom ( $n=9$ ). The most popular tool-centered hashtags for these tweets included #microsoftteams ( $n=4$ ), and #googleclassroom ( $n=4$ ). Only two tweets asked questions about how to use digital tools, suggesting that the hashtags were not widely used as spaces for technology troubleshooting.

In addition to sharing related to digital tools, users posted general thoughts about remote teaching and learning ( $n=384$ ; 33%), resources for parents ( $n=28$ ; 2%), and educator self-care tips ( $n=25$ ; 2%). The following quotes exemplify the diverse range of tweets sharing professional knowledge:

- We've got just the thing for parents/teachers experiencing #remotelearning. - #Gamification - Online games that teach for grades K-12. [hyperlink]
- Television as #RemoteLearning Tool During School Closures [hyperlink]
- There are far too many equity concerns to be grading any schoolwork done remotely. #remotelearning

These examples showcase the variety of content and messages posted in the #remoteteaching and #remotelearning spaces.

In nearly half of the tweets ( $n=547$ ; 48%), users engaged in social sharing. Such sharing included users tweeting positive messages or humorous content, presenting their experiences as they navigated the crisis, or dialoguing with others. In 41% of the social sharing tweets ( $n=225$ ), users posted positive messages by communicating uplifting messages, gratitude, inspiration via hashtags (e.g., #wevegotthis, #bettertogether), and via emojis (e.g., hearts, clapping hands). Several school accounts shared how proud they were of their school communities' participation in remote learning, oftentimes including pictures of teachers or students working from home. Teachers shared their successes, celebrated digital tools that were helpful to their practice, and offered positive messages to others.

Another form of social sharing was showcasing the reality of remote life as a teacher, learner, worker, or parent ( $n=170$ ; 15%). For example, an assistant principal posted a smiling photo with his family at a table working on their laptops and a school account posted images of students at their home workspaces with the text: "A big shout out to our students, faculty, and families who continue to adapt and embrace the way we're teaching and learning. Share YOUR [school name removed] photos by tagging @[school twitter handle]." Multiple teachers tweeted photos of their new teaching setup or workspace at home.

Educators, schools, and parents also posted images of student work or students engaging in schoolwork ( $n=106$ ; 9%). For instance, a second grade teacher tweeted an image of a student watching their Zoom lesson with the text: "#RemoteLearning is challenging ALL of us...but watching this sweet soul watch my #BFG video makes everything worth it." Nearly half of the tweets in this category were posted by teachers ( $n=48$ ; 45%), while just over a third ( $n=37$ ; 35%) were shared by school accounts. Both educator and school accounts' sharing of student work seemed to be

meant as a way to display success in remote teaching or express positivity about staying connected with students at a distance. For example, one teacher posted images of their students at work and the text: “The kindergartners and their parents are rocking this #remoteteaching adventure! Way to go!”

In addition to professional knowledge and social sharing, various accounts engaged in self-promotion ( $n=359$ ; 31%). Users promoted their own work, their organization, or an organization with which they were affiliated. Examples of self-promotion included teacherpreneurs or for-profit individuals/organizations posting links to their own resources, websites, events, or blogs, and educators who identified as educational technology tool ambassadors sharing information about those tools. Self-promotion included direct selling of goods (e.g., a tweet with a hyperlink to a teacherpreneur's own TeachersPayTeachers.com store) and more indirect promotion of companies' or education influencers' brands. Nearly half of the self-promotion tweets ( $n=163$ ; 45%) were posted by for-profit individuals or organizations, while 16% were from teachers, 13% from schools, and 10% from school support professionals. Chi-square tests of independence (with Yates' continuity correction) revealed that the likelihood of a tweet being retweeted was actually increased by a tweet coming from a for-profit account ( $\chi^2 = 11.25$ ,  $df = 1$ ,  $p < .001$ ) or being self-promotional in nature ( $\chi^2 = 8.7$ ,  $df = 1$ ,  $p < .01$ ). Self-promotional tweets were much more likely to share an image or video in the tweet than non-self-promotional tweets (63% vs. 49%), with a chi-square test with Yates' continuity correction showing significance ( $\chi^2 = 18.83$ ,  $df = 1$ ,  $p < .001$ ).

The fourth type of action identified in the dataset was information broadcasting ( $n=144$ ; 13%). Most commonly, users posted information about a learning opportunity, such as a webinar, a digital space for connecting with other educators, or an online course. School accounts also broadcasted information to students and their families. For example, a school account posted, “Don't forget to upload any completed work as instructed by your teachers. We'll see you at 9:10 AM tomorrow morning.” In summary, users showcased diverse purposes for tweeting with these hashtags, ranging from sharing knowledge and successes to self-promotion.

## 5. Discussion

With more than 36,000 combined tweets in less than two months, #remoteteaching and #remoteteaching served as spaces that various education stakeholders used to share multiple kinds of content. People and organizations invested in the common endeavor of remote teaching and learning posted large amounts of information on these hashtags, including ideas, success stories, digital tools, teaching strategies, videos, and resources. These hashtags did not, however, just serve as places for collective knowledge sharing. Educators posted about their lives, supported one another, and expressed gratitude. Additionally, various organizations and individuals used the hashtags to engage in forms of self-promotion and marketing. We consider the potential benefits and challenges of these spaces in the paragraphs that follow.

Consistent with Greenhalgh and Koehler's [27] research, our findings suggest Twitter hashtags offered affordances as ad hoc spaces where educators engaged in just-in-time knowledge and social sharing. Greenhow et al. [29] suggested that in emergency contexts, “just-in-time professional learning needs and questions surpass local PD capacity” (p. 2), and given the amount of information, ideas, resources, tools, and strategies that were being shared in the #remoteteaching and #remoteteaching hashtags, it appears that Twitter offered one means for some of those needs and questions to be addressed. Our findings can be connected to research on Spring 2020 #edchat hashtag traffic [29], as we similarly identified various forms of available support co-existing and sometimes combined with high levels of self-promotional content.

Given its flexibility, social media may remain an important venue for future just-in-time professional learning opportunities as we are “living in times of multiple and multiplying crises, some apparently slow and later, and maybe abstract, others fast and tangible and now” ([82], p. 1). In such an environment, the need for professional learning may well continue to outpace local PD capacity [21]. For example, as the U.S. Center for Disease Control and Prevention has changed their pandemic guidance for schools, and school districts have responded with new policies and practices, U.S. teachers have repeatedly had to make rapid changes to their teaching modalities. Social media spaces appear to

offer some affordances for the quick information exchange and sharing of advice that could prove necessary in such rapidly evolving contexts. Nevertheless, in a pandemic context, the just-in-time nature of social media may be a double-edged sword, as there is the possibility for “negative outcomes if educational technology quick fixes are implemented without balancing their consequences” ([72], p. 3). Also, the nature of the #remoteteaching and #remotelearning hashtags will likely change over time; neither affinity spaces nor teachers’ uses of those spaces are static [96], [104], and researchers have already identified different stages of COVID-19-era education-related use of Twitter in both Spain [5] and South Korea [3].

In alignment with Gee’s [25] conception of affinity spaces, various forms of knowledge were evident in these spaces. Given the pandemic context, many tweets featured professional knowledge related to digital tools, teaching strategies, and assessment practices in remote contexts. While educators were physically isolated from their students and colleagues, Twitter seemed to offer spaces for socializing that often happens in physical school settings. In the absence of informal faculty lounge conversations and collaborative knowledge building in teacher workrooms, the opportunities social media provided educators to interact with and support one another may have been particularly valuable, if not equal to what typically would have been available in-person.

The possible benefits associated with the #remoteteaching and #remotelearning hashtags do therefore appear to be meaningful. However, those benefits must be considered in light of challenges and shortcomings related to these spaces. The hashtags provided a variety of information and resources related to remote teaching that may have been experienced as a treasure trove by some educators and a chaotic mess by others. Additionally, resources shared in social media spaces might not be vetted or might be inappropriate for particular contexts. These spaces were also filled with for-profit individuals and companies offering their ostensible technology solutions for problems facing teachers; however, some of the challenges associated with remote learning during a pandemic cannot or should not be addressed with digital technology solutions. For example, remote teaching could be a time to shift some teaching and learning activities to more outdoor and place-based experiences [48,78]. While Twitter hashtags can provide quick access to recommendations regarding applications of particular digital technologies, educators and schools still must consider related matters of ethics, data privacy, and surveillance. The COVID-19 pandemic created a “seller’s market” ([72], p. 1) in which many teachers and schools were desperate to make remote learning work and may have neglected the deliberation, analysis, and reflection they would normally have employed around the use of new technologies. The frequent positive messages in these spaces may have resulted in educators who were struggling with pandemic challenges feeling a sense of inadequacy as they were expected to persevere or remain upbeat through a deadly pandemic. In some cases, social media have played host to relatively more negative messages, expressing critiques, fears, and frustrations related to education challenges [105], including in the COVID-19 pandemic context [3].

With the increased popularity of the hashtags during the pandemic’s early days, many educators, school accounts, and non-profit and for-profit individuals and organizations used the hashtags as spaces for different forms of self-promotion. The high percentage of self-promotional tweets with embedded images and videos also highlights efforts to carefully craft tweets that would attract users’ attention. Although accounts associated with individual PK-12 teachers comprised the single largest group ( $n=365$ , 32%), the next largest group was for-profit organizations or individuals ( $n=299$ , 26%). Given the additional presence of education entrepreneurs and private schools, these spaces played host to many tweets that had promotional or marketing aims.

All such self-promotion is not inherently dishonest or problematic [1] and it may have been interpreted in distinct ways by different users of the spaces. We, the authors, have promoted our own research by sharing it via social media. In many cases, users promoted themselves by sharing technologies, information, learning opportunities, or resources specific to, and potentially helpful for, remote teaching and learning. We did not, for example, observe tweets that appeared to be completely off-topic spam, despite such content occurring in some other popular education hashtags (e.g., tweets selling handbags or linking to pornography websites; [99]). The self-promotional content was arguably relevant to the endeavor of the affinity spaces [25], and indeed, the likelihood of a tweet being retweeted was increased when it came from a for-profit account or was self-promotional in nature. This could signal that at least some users welcomed the presence of for-profit actors and self-promotional content. However, caution is needed when interpreting

digital traces such as retweets, as users' intentions can be unclear [13], and users, including education influencers, may engage in actions to manufacture attention for postings (see [95]). Additionally, the sheer quantity of self-promotion in the #remoteteaching and #remotelearning spaces may also have been overwhelming or distracting for some users.

Some educators may feel comfortable assessing the claims made on social media by for-profit businesses or simply choose to ignore such content, while other educators may appreciate information about products sold by those businesses. For example, many school districts in the United States use Google Classroom or Google Workspace tools, and educators in such districts may perceive resources shared by Google about how to utilize those tools as helpful technology support, more than as marketing or selling. Yet, this also may indicate that for-profit companies, such as Google, continue their encroachment into educational spaces with little opportunity for educators to address a range of technoethical issues [91]. Even if some educators do not perceive self-promotional content to be particularly problematic, it may serve to further normalize a commercial intrusion in educators' professional lives in ways that impact their understanding of their roles and their profession [10]. And as Staudt Willet [71] noted, self-promotion in Twitter hashtags can be overt at times, but subtle at other times; educators may not therefore always be aware that promotion is occurring.

These varying examples illustrate how there can be overlap in the different purposes for tweeting that we described: *professional knowledge sharing*, *social sharing*, *self-promotion*, and *information broadcasting*. For example, some knowledge sharing was also social in nature and some self-promotion involved information broadcasting or knowledge sharing, too. We saw, therefore, the complex intermingling of both "intercom" and "megaphone" uses of the hashtags by some users and within the hashtag traffic as a whole ([2], para. 4).

Users' self-promotional activities should be considered alongside the commercial motives of Twitter, Inc., a for-profit company that does not have educators' wellbeing or interests as primary concerns. Scholars have previously noted how social media companies' profit imperatives inevitably influence the nature of interactions and discussions that occur on their platforms [20,90]. Twitter provides open spaces where anyone may convene, and many educators have chosen to use such spaces. However, those spaces cannot be effectively partitioned off or made private. As a result, the same Twitter features that facilitate the creation of spaces for professional learning also invite the presence of less helpful—and sometimes even harmful—content [47,61].

## 5.1. Limitations and implications for future research

This study had limitations that suggest opportunities for future research. First, we studied a single platform even though educators likely also used other social media platforms to navigate the disruption brought on by the COVID-19 pandemic. Studies that compare and contrast educators' uses of different social media or that explore the interconnected nature of educators' actions and learning within and among these spaces would benefit the field [94]. We also noted, for instance, limited discussion on #remoteteaching and #remotelearning about equity, privacy, or the challenging circumstances teachers faced (cf. [106]). Educators did not seem to publicly engage with these complex topics in these spaces, despite their relevance to the hashtags' foci. Research looking at multiple platforms might have revealed whether other spaces were more amenable to critical discussions of such topics, or supportive of less positive messages related to pandemic teaching.

Second, our data collection was limited to a window during March and April 2020. Although this provided rich data for describing how these hashtags were used during the time period when many schools in English-speaking countries were shifting to remote learning, future research could explore how the use of such spaces changes over time [83]. Third, because we relied upon digital trace data, we do not know for certain users' intentions for posting to these spaces, nor can we interpret what sense or use educators may have made of the content. Researchers could therefore employ surveys and interviews to better understand educators' motivations and experiences of such spaces.

Our findings point to additional fertile ground for research. There is a need to better understand education influencers in terms of their experiences and their impact on other users [70]. For example, to what degree does the presence of education influencers move these spaces towards individualistic, consumerist, capitalist cultures rather than towards

spaces of collective activism [73]? Given the quantity of self-promotional content in our dataset, researchers could investigate how users interpret and evaluate content from for-profit entities and education influencers. For example, to what extent do users simply treat self-promotional content as a necessary annoyance or inevitable part of social media use?

Researchers could also explore how social media might support educators as they navigate crisis-induced stressors while also potentially adding to teachers' anxiety by tying them more closely to reminders of the challenges they face [14]. Given the increased risk of burnout for teachers navigating crises [30], research that investigates how social media might mitigate and contribute to burnout would benefit the field. Similarly, how social media and other digital technologies help educators maintain social contact with students during crises could be studied in terms of both related opportunities and challenges (see [34,67]).

## 5.2. Implications for practice

Our findings have various implications for educators. First, educators who experience unexpected disruptions to their work may find that social media spaces can feature beneficial resource sharing and emotional support. Educators can use such spaces for self-directed professional learning activities aligned with their particular needs and contexts. Analysis of the content of tweets revealed that educators need ideas and resources to help them address pandemic-era challenges, and they also need spaces to express and receive support related to the emotions they confront. Hashtags can also help filter out some of the digital noise that is present on Twitter by making it less necessary to follow individuals; educators can instead give their attention to the conversations based around hashtags. However, educators must be critical consumers of the content they encounter in for-profit spaces with algorithms that can amplify problematic content. Although some content may be high quality and practitioner-vetted, educators must be aware of how much self-promotion and marketing takes place in these spaces and evaluate content accordingly. While self-directed professional learning via social media may be helpful in crisis contexts, some kinds of externally managed or mandated PD may benefit teachers as well. During crises, some educators may not be aware enough of their own needs, or they could need counseling or training in psycho-social skills [68] that may not be easily provided via social media.

Our results underscore the need for learning opportunities to help teachers navigate the social media landscape. Under normal circumstances, the education content on social media is, at times, problematic [65,97]. Amidst the cacophony of pandemic commentary and pressures of remote teaching, it may be even more difficult to assess whose voices and resources should be trusted. New media require new literacies of users [37] and many educators would benefit from support in developing critical social media literacies. Also, many teacher educators must themselves develop greater critical social media literacy to be effective role models for future teachers [47,61].

Teacher educators could also turn to services like Twitter for insights regarding educators' experiences, perceptions, and concerns during crises. More anonymous social media sites such as Reddit may also offer opportunities for scholars to hear the unfiltered voices of educators [96]. What teacher educators learn from listening in such spaces may inform the work they do with pre-service and in-service teachers.

## 6. Conclusion

For educators grappling with the complex set of education-related challenges associated with the COVID-19 pandemic, the #remoteteaching and #remotelearning Twitter hashtags offered access to various kinds of potentially beneficial supports. As they struggled to adjust their pedagogy and manage changes in their home lives, educators may have drawn succor from the ideas and camaraderie available to them in these online spaces. The hashtags appeared to some extent to reflect the potential of digital technologies to help connect people so that they can "discuss, learn, and tackle common problems together" ([72], p. 12). However, these hashtags also came with associated challenges. Self-promotion and commercial motivations were undeniably important parts of these spaces, and likely influenced educators' experiences. Understanding how both sharing and self-promotion co-exist in hashtags can help

inform teacher development and support considering that online spaces will likely continue to play important roles for educators throughout the full course of the COVID-19 pandemic and beyond.

## Declaration of Competing Interest

None.

## Appendix

Table A1, A2, A3 and A4

Table A1. Initial Codes for Tweet Content and Twitter Account Roles

<b>Tweet Content Code</b>	<b>Definition</b>
Sharing (Self-Promotion)	Tweet featured resources, links, and/or materials created by the person writing the tweet.
Sharing (Promoting Others' Content)	Tweet featured resources, links, and/or materials created by others.
Sharing (Ideas or Thoughts)	Tweet featured advice, thoughts, or links to articles with ideas.
Sharing (Technical Advice)	Tweet featured information, advice, or resources for using various tools and apps for remote teaching.
Asking Questions / Making Requests	Tweet featured a question or request for help.
Discussion	Tweet was part of a discussion thread or a synchronous Twitter Chat.
Parenting	Tweet featured resources for parents or examples of parenting.
Presenting Student Work	Tweet showcased student work.
Positive Culture	Tweet featured success stories, words of encouragement, gratitude, or motivational messages.
Remote Teaching Life	Tweet featured personal experiences related to the shift to remote teaching.
Humor	Tweet featured a gif, meme, or other intentionally funny material.
Challenges with Remote Teaching	Tweet presented concerns, difficulties, or critiques of the remote teaching situation during COVID-19.
<b>Role Code</b>	<b>Definition</b>
Teacher	Individual in PK-12 classroom teaching role, including librarians/media specialists
Administrator	Individual in PK-12 school administration role, such as a principal, assistant principal, or superintendent
School account (private)	Official institutional account (representing either the entire school or a specific department/unit) for an independent or private school
School account (public)	Official institutional account (representing either the entire school or a specific department/unit) or for a traditional public school or public charter school
Non-profit edu org	Institutional account for a non-profit organization working for such an organization.



<b>Tweet Content Code</b>	<b>Definition</b>
For-profit edu company	Institutional account for a for-profit company, individual working for such an organization, or individual that is self-employed or consulting in education.
Parent	Individual whose motivation for tweeting to the hashtag appeared to be linked to their role(s) as a parent, family member, or guardian of students who are experiencing remote learning
Student	P-20 student
Other	Account could not be identified with any of the other roles listed above

Table A2. Final Codebook for Twitter Account Roles

<b>Role</b>	<b>Definition</b>
Teacher	Individual in PK-12 classroom teaching role, including librarians/media specialists
Administrator	Individual in PK-12 school administration role, such as a principal, assistant principal, or superintendent
Other School Role	Individual in PK-12 role that is neither a classroom teacher, nor an administrator, such as instructional technology facilitator or curriculum coach
Higher Education Faculty & Staff	Individual in tertiary education role, including faculty, researchers, and instructional designers
Subcode: Edupreneur	Lists in profile information or a link (e.g., TeachersPayTeachers store site) that indicates that they sell educational materials or services
Subcode: Edtech Tool Ambassador	Lists in profile ambassador or fellow status for one or more education technology tools (e.g., Bunccee, DoInk, Class Dojo, Desmos)
Subcode: Edtech Certifications or Expertise Claims	Lists in profile certifications for education technology hardware, software, or digital tools, such as Google Certified Educator or Microsoft Innovative Educator
Public School or University Account	Official institutional account (representing either the entire school or a specific department/unit) for a traditional public school, public charter school, or public university
Private School or University Account	Official institutional account (representing either the entire school or a specific department/unit) for an independent or private school or university
Non-Profit Educational Organization or Individual	Institutional account for a non-profit organization or an individual working for such an organization. Does NOT include those currently in PK-12 teaching roles
For-Profit Educational Organization or Individual	Institutional account for a for-profit company, individual working for such an organization, or individual that is self-employed or consulting in education. Does NOT include those currently in PK-12 teaching roles
University Student	Tertiary education student, including college and graduate students
Parent, Family Member, Guardian of Student(s)	Individual whose motivation for tweeting to the hashtag appeared to be linked to their role(s) as a parent, family member, or guardian of students who are experiencing remote learning
Other	Account could not be identified with any of the other roles listed above (e.g., one tweet came from a PK-12 student)

Table A3. Final Codebook for Tweet Structure

Code	Definition	Percentage
Original Tweet	Tweet consists of content created by the user	66
Comment Tweet	Tweet re-broadcasts (retweets) another tweet and includes a substantive comment about that tweet	19
Retweet Without Comment	Tweet re-broadcasts (retweets) another tweet without adding any substantive commentary	7
Reply Tweet	Tweet replies directly to another tweet	7
Hyperlink With Image	Tweet includes a hyperlink with a preview image created by Twitter to accompany the link	14
Hyperlink Without Image	Tweet includes a hyperlink without the associated preview image	27
Embedded Media	Tweet includes an image (e.g., GIF, meme, graphic) or video directly uploaded by the user	56

Note: Percentages do not sum to 100 because tweets could receive more than one of the codes.

Table A4. Final Codebook for Tweet Content

Category	Code	Definition	Example	n=
Self-promotion	Self-promotion	Person or organization posting resources, event information, links, and/or materials that promotes their work	"Watch my new video on the 4 wins of the last 2 weeks during #coronavirus.	359
Information Broadcasting	PD opportunities	Providing information about professional learning opportunities, such as webinars and online communities	"[image for PD event] Register and tag the teachers you know: [hyperlink]"	104
	Announcements	Broadcasting a public announcement or information	"From Pres Meana, today @Unlv starts massive #remoteteaching effort to finish the semester impacting 20k students, 5000 courses, 3 profl schools."	40
Professional Knowledge Sharing	Specific digital tool/app for education	Sharing information, advice, or resources for using various tools and apps for remote teaching	"Tips for #remoteteaching: Use Google Forms for quick quizzes and checks-for-understanding."	196
	Self-care	Posting resources, advice, or information about self-care for educators, students, and/or parents	"Need some quick ways to relax & destress throughout the day? [link to Kaiser Permanente Thrive website]"	25
	General thoughts, ideas, tips, or resources	Sharing commentary, insights, questions, or resources for remote teaching.	"Our #remoteteaching efforts should be multimodal. We should have both digital and unplugged activities. What if we just asked students to complete an integrated passion project during this time?"	384
	Critiques	Presenting concerns, difficulties, or critiques of	"What We Lose When We Go From the Classroom to Zoom [link to NY Times	20

Category	Code	Definition	Example	n=
		education	article with same title]"	
	Resources for parent/families	Sharing links, materials, or ideas for parents, such as learning activities for kids.	"Brand NEW #RemoteLearning Guide - #FamilyEdTech Edition. Learn how families & learners can access & use #Buncee at home for #RemoteLearning!"	28
Social Sharing	Humor	Posting text, gifs, memes, or other intentionally funny material.	"Georgetown University is now in a #remotelearning environment, but if you run into someone, just remember to stay 41.14 Oreos apart to meet social distancing guidelines."	42
	Student work	Sharing a picture or video that showcases student work or student activities.	"In Forest School, Jessica made a necklace out of leaves - Beautiful. □ #RemoteLearning #ManorPrep #ForestSchool"	106
	Remote life	Discussing or showcasing new experiences related to remote teaching, learning, parenting, or working life.	"#remoteworking #technology #StayHomeSaveLives #DigitalLiteracy... Never have I consulted and learn[ed] so much from Youtube #remotelearning."	170
	Positive expression	Sharing success stories, words of encouragement, gratitude, positive emojis, or motivational messages.	"LOVING that my #IM421 students are finding amazing resources for this new normal of #remotelearning"	225
	Challenges with remote teaching	Sharing concerns or difficulties related to the remote teaching situation during COVID-19, such as missing in-person interactions with students and colleagues.	"I miss my teaching team #remoteteaching #homelearning #thedreamteam"	47
	Chats	Posting as part of a synchronous Twitter chat session	"Q1: How are you making the transition to #RemoteLearning? Share stories. #MSFTEduChat"	53
	Asking questions or making requests	Posting a question or request for help.	"How have you facilitated group work since transitioning to #remotelearning #distancelearning #virtualschool? My colleagues have done wonders with @padlet and @flipgrid. Looking for more ideas and tools. #edchat"	83

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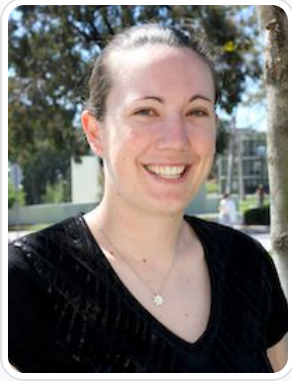




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I study educators' self-directed professional learning experiences via social media and have published on educators' uses of Instagram, Twitter, Pinterest, and Reddit. I have multiple research projects in various stages of development and can include students at different stages of the research process and in different kinds of analyses (qualitative or quantitative).



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Torrey Trust, Ph.D. is a Professor of Learning Technology in the Department of Teacher Education and Curriculum Studies in the College of Education at the University of Massachusetts Amherst. Her work centers on the critical examination of the relationship between teaching, learning, and technology; and how technology can enhance teacher and student learning. Specifically, Dr. Trust studies how educators engage with digitally enhanced professional learning networks (PLNs), how emerging pedagogical tools (e.g., HyperDocs), practices (e.g., Making) and technologies (e.g., 3D printers, augmented reality) facilitate new learning experiences, how to find, critically evaluate, and teach with digital tools and apps, and how to design and use open educational resources (OERs). Dr. Trust served as a professional learning network leader for the International Society for Technology in Education (ISTE) for five years, including a two-year term as the President of the Teacher Education Network from 2016 to 2018.

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