





Analysing the Pattern of Twitter Activities Among Academics in a UK Higher Education Institution

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Abstract. This study explores the temporal patterns of Twitter use in academia, through quantitative and qualitative methods, answering the following questions: When do academics tweet? Where do academics tweet? and How often do academics receive feedback from their followers on Twitter? UK academics who are active users of Twitter in a specific institution were recruited for the study. Both the temporal patterns (daily and weekly) in the use of Twitter and the uses themselves suggest that the practice is seen primarily as a professional matter, and secondarily as personal. A significant pattern of ‘microbreaks’ is identified. The data indicates that where Twitter use becomes habitual, it is experienced as a positive addition to available communication tools.

Keywords: Social media · Twitter · Digital scholar · Higher Education

1 Introduction

Social media are communication platforms built upon Web 2.0 [1] principles [10] and are of importance because of their potential to change how people communicate, search for and exchange information online [6]. Through supporting User-Generated Content (UGC), they enable users to enter a more social and participatory phase of the web and to be dynamic contributors creating, managing, annotating, curating, reviewing and sharing information/data in online communities [10]. Higher Education (HE) has been one of the most active fields where attempts have been made to use such technologies to aid in learning, facilitate information sharing and foster collaboration among teachers and students, researchers and administrators. With the on-going development of social media applications, enthusiastic academics have been practical innovators taking steps to actively explore such tools in their pedagogic practice. A number of researchers have concluded that the use of social media in HE for the advancement of teaching and learning in education has been successful [20, 21, 25]. In addition to its use in support of teaching, academics have begun to expand their use for a wide variety of other purposes including for scientific and professional reasons [14]. Some authors have even

argued that social media use may transform the very nature of academic communication, writing, scholarship, research patterns, relationships and identity [12, 16, 23, 24, 26]. Microblogging via Twitter is one of the most common examples of social media being used in academia [13, 18]. Twitter is popular for its immediacy and efficiency. Although limited to messages of 140 characters yet it can include links to photos, videos or other online content [5, 7]. Despite the short length of messages, it can offer continuous public discourse in an open environment. This feature differentiates it from Facebook, which is more popularly used for establishing personal social networks rather than public discourse [5]. Twitter has been found to support communication activities and promote collaboration, through discussion, giving updates, questioning and answering and providing suggestions that facilitate an increase in awareness between scholars [8, 9].

While it has been seen that social media, and Twitter in particular, have been widely used in academic contexts, most previous research focuses on simply identifying the different ways Twitter is used. In contrast, this study emphasises the temporal patterns of Twitter use, through in-depth quantitative and qualitative analyses of Twitter activity by academics from the University of Sheffield. The paper seeks to answer the following questions: (1) When do academics tweet? (2) Where do academics tweet? and (3) How often do academics receive feedback from their followers on Twitter? While some researchers have established that Twitter has been widely used in the education sector [4, 15, 18, 23], the patterns of daily usage, posting, and replying are yet to be understood.

2 Methodology

This paper reports quantitative analysis conducted through a time-use analysis, specifically episode sampling, of the use of Twitter by 28 academics from the University of Sheffield, UK. Participants were selected based on the following criteria: having a Twitter account that was being used for professional purposes; that their account had been registered for at least a year; and that they were posting regularly – at least one tweet per week. The data was compared with qualitative responses gathered from the academics through interviews [22].

Participants were diverse in terms of disciplines, gender, age and levels of seniority. Tables 1 and 2 give an overview of the demographics of participants.

Table 1. Academic status of participants.

	Frequency	Percent
Professor	9	32.1
Senior lecturer	5	17.9
Lecturer	8	28.6
Research fellow	3	10.7
University teacher	3	10.7
<i>Total</i>	28	100.0

Table 2. Age groups of participants.

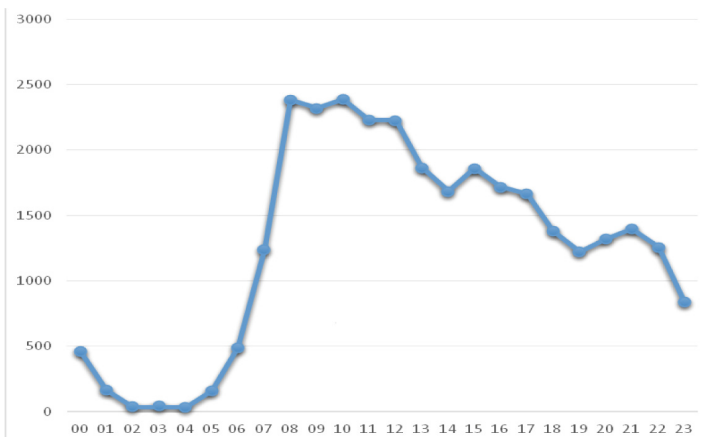
	Frequency	Percent
20–29	3	10.7
30–39	8	28.6
40–49	10	35.7
50+	7	25.0
<i>Total</i>	28	100.0

The sample made up a significant proportion of the early adopters of Twitter in the institution concerned. The tables above reveal that most participants were professors and lecturers and in the age group 40 to 49. The early adopters in this study show that Twitter was adopted among people of differing academic seniority levels and age groups in the university. This situation poses a challenge to the idea that digital tools are mostly relevant for ‘young’ people or the ‘digital native’. The profile of the respondents in this research is like that in the studies by Carpenter and Krutka [2, 3] where they argued that most educators who use Twitter in the United States are in their 30s and 40s and suggests that the digital native stereotype is slowly changing despite the claims of Prensky [17] and Risser [19]. Despite the small sample size, because of the purposive sampling approach and the combination of quantitative data with insights from the qualitative stage of the research the insights generated in this paper gives an in-depth sense of the pattern of Twitter engagement, albeit not generalizable across the whole academic population.

3 Results

3.1 Hourly Distribution

As seen in Fig. 1, academics send most of their tweets during working hours. However, the peak period of tweeting is 7–9 am. This suggests that tweets are regularly posted as

**Fig. 1.** Hourly distribution of tweets within a day

the academic search for news items while they are on their way to work or immediately upon arriving in the office.

3.2 Early Morning Twitter Activities

Participants mentioned that it had become automatic for them to browse the network even in the early morning. Twitter becomes a means for them to receive the first news of the day.

“I tell you what I do, when I get up in the morning I will always, before I leave the house, I always look at Twitter, I always look at my timeline... You know what happens in the world and who is saying what. From the Twitter feed I follow BBC breaking news. If I want to get more information about that story I can follow them throughout the day; if I get time.”

“I look at it first the soonest I get out of bed on my phone but generally don't respond to anything then, I just look at it. Just see what is there.”

Participants indicated that the habit of opening Twitter serves as their first source of information before performing other daily routines. The accessibility of social media applications through mobile devices seems to play a key role in determining this pattern. Twitter can be quickly and conveniently accessed because it is used on a mobile device that is always at hand.

One academic described how she deliberately engages on Twitter early in the morning, particularly when most of her colleagues are online.

“Normally, if I'm going to do it, very often before work. I think that the time when a lot of people that I know are online is. You know you can get a report that tells you when your followers are online. I did that for the department feed and I did it for mine at the same time and my impression was that most of the people, you know... It's like between eight and nine in the morning when most people are at work, but not working.”

The trend showing that the engagement of academics gradually increases from 5 to 7 in the morning can be attributed to Twitter's accessibility and mobility. As a consequence, academics have developed a habit of tweeting during their commute. One interviewee described how her tweeting activity increased when she started to commute with public transportation due to the long journey involved:

“Part of the reason maybe that I started tweeting is because I commute, I commute 5 days a week and it is a train journey for about an hour so what tends to happen is I read all my twitter feeds and then I read the news and the response to me on twitter and probably post about the news.”

Another factor that affects the peaking of Twitter use in the early hours is the fact that many participants collaborate with researchers from countries in different time zones. For instance, since UK is five hours ahead of the USA, (e.g. Washington DC) so major developments often occur over night. Twitter users wanted to catch up first thing in the morning.

“In the morning, I see what everyone has been doing as well partly because as I say you know I am friends with a lot of people in my field and that means there is always something going on over night, you know I have colleagues who are I am interested in their work and tweet in Canada and the States, so Australia.”

3.3 Microbreaks

As seen from Fig. 1, most tweeting activities occur during work hours. From the interviews, academics suggested that their Tweeting activity mostly occurs during work.

“When I have a kind of admin-type day, if I’m doing lots of bits, small things like emails, then I might well tweet in between, comment on things, retweet and so forth and when I see interesting tweets I just retweet them... it’s sort of when it fits into what I’m doing other things. Sometimes if I’m at the computer doing bits and pieces, like emailing or writing short messages or something that perhaps doesn’t require lots and lots of focus and concentration on doing one thing then I probably kind of tweet in between that.”

Academics seem to use Twitter while engaged in other work routines. This implies a significant relationship between work patterns and Twitter use. In the interviews academics mentioned that they use Twitter to ‘kill dead time’. This phenomenon could be referred to as a ‘micro-break’, a short period of social network engagement while at the workplace, with the aim to reenergize the self before returning to work routines. It is a practice where a person initiates a distraction, a ‘self-interruption’ to focus on lower level activities as a relief from the pressure of work. Micro-breaks can happen at any time within the day, and it is at these points scholars are mostly active on Twitter.

In microbreaking academics multitask to achieve something beneficial in terms of personal and academic endeavor, such as browsing for information to enlarge academic knowledge; sharing research interests and outputs to create future collaborations; and boosting visibility through communicating expertise in an academic discussion. Academics are typically multi-tasking: most of them have their Twitter account open along-side emails and other research work on different windows of a single browser.

Participants talked about setting their own rules or philosophy regarding tweeting. One professor strongly emphasized that he used Twitter only for purposes associated with his professional responsibilities, stating that:

“So, I do Tweet in the office, I mean on my iPhone, my iPad, or whatever but you know I, it’s something that is definitely work associated [...] It’s something I do when I’m working ... Twitter stays in the work compartment of my life.”

Another commented:

“It’s like an accompaniment to my everyday work and because I think of Twitter more as a work thing in a way, that I connect it with my academic, kind of online identity and things like that [...] I think because most of the people I follow are academic-related in some way that I associate it with work space and work time.”

Thus, Twitter is seen mainly as a way to enrich professional working relationships. The user builds a profile in a convenient way interaction and the visibility of tweets. This shows how academics incorporate Twitter in their work routine, despite their tight work schedule.

3.4 Follower Feedback Frequency

Interactive communication is an important aspect of how academics use Twitter. As is evident in Fig. 2, the number of tweets made by academics is more than the replies

received. However, there is strong correlation between when tweets are sent out and replies received as seen from the similarities in both curves of the graph. This suggests that Twitter is interactive, with a strong culture of replies being sent to those who Tweet.

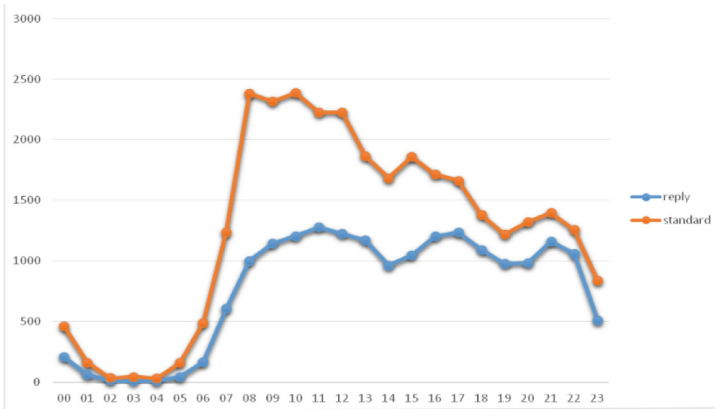


Fig. 2. Hourly distribution of tweets sent and replies received by academics within 24 h.

Most academics described how a significant use of Twitter was to connect with small or large groups of people who share common interests and goals. These networks included other academics, professionals, students, ex-students and people outside academia.

“I had very supportive, interesting interactions with all of these nice people who kind of then introduced me to other people and it made it feel like an actual community of people rather than just a receptive, you know, somewhere where people broadcast.”

For this user, the supportive environment of the community served as an inspiration for her to join Twitter. This meant that she was comfortable in actively communicating and sharing updates and information while expanding her network.

“Well I think it’s very useful for keeping in touch with your colleagues and with people in your field and I think it helps you to feel like you’re a part of the community of practice... it’s very useful because you get to understand what people are talking about, what people are thinking is important, what the debates are, what the problems are, so I think it’s very useful as a professional tool for feeling like you’re a part of a community of researchers.”

Another academic believed that tweeting about her research collaborations with colleagues made her become more engaged with her work as well as with the community of people that participated in the project. This relates to the earlier findings that Twitter use peaks at different times of the day when collaborators are able to communicate across time zones, across temporal and geographical boundaries, as also shown earlier in the paper. The use of Twitter becomes interactive with tweets and replies.

“Twitter helps me connect with everybody in the project really fast and it helps me connect and helps me think about the project. I think the project has a Twitter excitement about it.”

4 Discussion

The active users recruited for this study were well distributed across ages and levels of seniority, rather than being clustered into younger age groups. This suggests that it should not be assumed that early adopters in this context are necessarily young or junior staff. Both the temporal patterns (hourly, daily and weekly) in the use of Twitter are suggestive that the practice is seen primarily as a professional matter. Although academics Tweet a lot in the two hours before the working day starts, they did not do so much in the evening or at the weekend. Indeed, most tweets are sent in working hours. Tweeting activity is spread across the whole day and week. Twitter offers a micro-break a “productive interruption” to routine work tasks, that when spread through the day can reenergize the scholar.

The data shows that academics use Twitter throughout the day but particularly in the morning and activity declines gradually later in the day. This finding is consistent with the findings of Carpenter and Krutka [3] that 84% of educators use Twitter daily or multiple times a day for their professional, as well as for personal purposes. In terms of communicative use, the content of the conversations generally included discussions of academic research and information; asking for help from other colleagues in regards to research ideas or teaching; providing assistance/feedback to those from a similar research background, which involves an informal collaborative purpose; teaching or research activity; participating in social conversation with the audience; occasionally voicing suggestions or concerns; and using the technology as another informal channel to receive teaching feedback directly from students. Participants reported that having a dialogue on Twitter is a supplement to existing communication mechanisms. This is in line with the findings of Carpenter and Krutka [2] where they observed that certain purposes have corresponding time signatures in terms of frequency and duration. In particular, they observed that academics mostly spend a longer time on Twitter when doing back channeling (77.39). However, they also frequently use the platform to participate in Twitter chats (36.49) and in networking (33.99), which is related to what was observed in this study.

Although scholars send more tweets than they receive replies, the rate and patterning of replying, is suggestive of a culture of supportive interaction through Twitter. Again, this is consistent with the interview data, which showed that academics felt a strong sense of participating in a wide and supportive community of interest through Twitter. Further, the data is suggestive that where Twitter use becomes habitual it is experienced as a positive addition to available communication tools. Although there is some blurring of boundaries between personal and public activities, as indicated by a significant use out of working hours, for these academics use of Twitter is experienced as beneficial. The finding, in relation to Twitter’s role as a feedback channel through replies and retweets, supports Carpenter and Krutka’s (2015) [3] conclusion that Twitter becomes “a space of enthusiasm, invigoration, empowerment and connection” (p. 722). Lalonde (p. 119) [20] notes similarly that ‘the open nature of Twitter means these learning networks are now no longer confined to closed and private spaces, but are able to be open and public, which increases the opportunities for collaboration, connections and learning opportunities’. Harvey argues that low variation in the

temporal location often indicates that actors have little freedom in exercising a given activity. But in this case academics' hourly, daily and weekly engagement in Twitter did vary. This reflects the fact that they engage freely with it, as part of their everyday academic and non-academic activities.

5 Limitations of the Study

The research only gathered one-off data from the academics from the University of Sheffield who are enthusiasts of Twitter, other research could be done by considering alternative data collection periods and sampling methods. A longer timeframe and wider geographic coverage could be carried out in future research. In undertaking such future research, it is suggested that diary writing would be a good method of data collection to supplement twitter data and interviews, because this would generate deeper insights based on the experiences, practice and time use of the academics. Further, analysis could also be done based on demographics to verify the difference of use among younger and less experienced teachers and their old-timer counterparts. Students' experiences and time-use might also be explored in future studies.

6 Implications for Policy and Practice

While it has been emphasized that this research could not generate a generalizable picture for the majority of academics who use Twitter, the authors still believe that the findings have significant implications for HE policy makers and faculty members. For example, institutional policy makers can find encouragement in the findings to acknowledge the potential of social media in the learning and teaching process, as well as in professional development of teachers. The temporal pattern of use, in short breaks spread through the day, is suggestive of alternative models for continuing professional development.

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