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Learning in the palm of your hand: an exploration of the value of online education-related X/Twitter chats for professional learning

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ABSTRACT

Since Twitter's 2006 inception, educators have used the platform, more recently rebranded as X, for multiple purposes related to teaching and learning. Social media such as X have proven to be flexible sources of just-in-time learning for many educators across sectors. Education-related X hashtags and the synchronous and asynchronous chats associated with many of them have played host to various kinds of interactions amongst participants. Educators access ideas, share resources and connect with colleagues. Chats related to hashtags can function as Social Learning Spaces, where members drive the learning agenda and learning is rooted in mutual engagement. However, little is formally known about the value participants gain from being involved in these chats and how they contribute to their professional learning. They remain a relatively unrecognised form of professional learning. This qualitative study sought to explore participants' experiences and determine what learning they gained from their chat involvement. A thematic analysis revealed participants were in two main categories: those who used X chats to gain ideas for teaching, and more experienced teachers who valued chats for their broad discussion of theory, issues, and challenges around their practice. These findings provide insight into how such forms of professional learning should be recognised and validated in educational contexts.

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Introduction

The ubiquity of social media and the increasing tendency of educators to use it for communal support and the formation of professional learning networks has been well documented (Trust *et al.* 2016, Eradze *et al.* 2023). In particular, substantial numbers of teachers have, for more than a decade, engaged in what have been known as Twitter *chats* (Carpenter and Krutka 2015, Gao and Li 2017). More recently, Twitter has been rebranded as X, and we will accordingly refer to the platform by its new name except when quoting participants or prior literature. X chat events are linked through specific education-related hashtags and are typically led by volunteers known as moderators. Most often, chats on X last for one hour, and are scheduled at different times during a month, some weekly, some fortnightly and some monthly (Mercieca and McDonald 2021). Each individual chat typically focuses on a discrete subtopic related to the general topic of the hashtag; for

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example, the Social Studies-focused #sschat hashtag recently hosted an individual chat on the topic of ‘History in Our Backyard.’

Despite such chats existing for an extended period of time, not a great deal is known about how educators use them as part of their professional learning, how chats influence their classroom pedagogy and what priority teachers give to them. Our study seeks to understand the different ways educators experience chats and why they persist in using them as part of their professional learning. Our participants come from a range of backgrounds from early childhood to higher education and include those in leadership roles. How chats are used by participants is a relatively under researched area and chats remain a largely unrecognised form of professional learning in educational institutions despite being in existence for many years. Our research aims to advance understanding of this type of teacher professional activity or similar social media forms that might evolve from or replace them in the coming years.

Literature

To contextualise the present study, we review relevant literature from four areas. First, we provide an overview of the research regarding social media use in education. Then, we focus on educators’ use of X for professional purposes. Next, we narrow in specifically to literature regarding both synchronous and asynchronous education-related X chats – where participants participate either at the designated time or at a later date at their leisure. Finally, we consider the significance of Social Learning Spaces, a recent development of Wenger-Trayner and Wenger-Trayner (2020) Communities of Practice, as a way of understanding educator involvement in chats.

Social media in education

Social media platforms are known for their accessibility, flexibility, just-in-time learning and personalisation (Greenhalgh and Koehler 2017, Staudt Willet 2023), and some scholars have highlighted these platforms’ potential to encourage participation, collaboration, and the development of collective intelligence (e.g. Rheingold 2012). Research has explored the use of various social media platforms in education, such as Facebook (e.g. Eradze *et al.* 2023), Instagram (e.g. Richter *et al.* 2022, Shelton *et al.* 2022), TikTok (e.g. Hartung *et al.* 2023) and WeChat (e.g. Xue *et al.* 2021). Studies have investigated teacher social media experiences in various countries, including Australia (e.g. Hartung *et al.* 2023), China (e.g. Xue *et al.* 2021) and Italy (e.g. Eradze *et al.* 2023).

Educators use social media in teaching and learning activities with their students as well as for their own professional development. The current study focuses on this latter area of use. Research on social media use for professional purposes has demonstrated various educator motivations (Kelly and Antonio 2016, Prestridge 2019). Teachers may use social media to combat professional isolation and to socialise, gain emotional support and experience solidarity, camaraderie, or community with other educators (Carpenter and Krutka 2015, Bergviken Rensfeldt *et al.* 2018). They may engage in more active forms of information seeking (e.g. asking questions; Greenhow *et al.* 2021) or more passive forms. Educators may employ social media to seek and exchange information, ideas, and teaching-related advice (Mercieca and McDonald 2021). Such exchanges can focus on the practical, with attention to specific strategies, ideas, tips, and tricks, on broader discussion of ideas, and in support of reflective listening or lurking (Woodford *et al.* 2023). These social media uses are distinct from many other online professional development activities, such as webinars or formal online programs, in that teacher participation is typically voluntary and self-directed in nature. This can result in fluid, personalised, and evolving patterns in behaviour (Trust *et al.* 2016, Prestridge 2019).

Concerns and challenges have also been noted regarding educator social media use. Social media platforms have been plagued by cyberviolence over the years, and educators thus assume some risks

when they use these platforms – risks that may be more pronounced for members of minoritized groups (Nagle 2018). The quality of content shared via social media, data privacy matters and the for-profit nature of social media platforms, among other issues, all merit consideration (Krutka *et al.* 2019, Marín *et al.* 2021) and underscore the need for critical digital literacies if educators are to use social media in informed and wise ways.

X in education

X, formerly known as Twitter, was identified in its early days as offering multiple potential educational uses (e.g. Greenhow and Gleason 2012). Research has described teacher use of the platform to share resources, combat isolation and develop professional networks and communities (Carpenter and Krutka 2015, Fischer *et al.* 2019), and hashtags have been a common feature of educator X use (Rosenberg *et al.* 2020, Greenhalgh 2021, Carpenter *et al.* 2022). Wesely (2013) analysed the activities of a group of world language teachers ($n = 9$) who interacted both synchronously and asynchronously via a common hashtag and concluded that X facilitated a professional Community of Practice (CoP); i.e. a place where individuals learn from others and share their own ideas related to a common concern (Wenger-Trayner *et al.* 2014). Rehm and Notten (2016) analysed data from a hashtag for German-speaking teachers and found that conversations on X contributed to individual teachers' formation of social capital. Educators also use X to share content and resources from elsewhere on the Internet (Carpenter *et al.* 2022); in such cases, users typically include hyperlinks in their tweets to point others to content outside of the platform.

X is not a single monolithic space, and education-related X hashtags are diverse in nature (Greenhalgh 2021). For example, there are hashtags associated with geographical regions, languages, academic content areas, educational philosophies, professional development events, education texts and education activist movements, among other topics (Carpenter *et al.* 2022). Education-related X hashtags are not a solely English-speaking phenomena; for example, Rehm and Notten (2016) found that a hashtag popular among German educators provided access to more relational resources, and Greenhalgh and Koehler (2017) described how a hashtag allowed French educators to engage in just-in-time discussions of how to respond to the 2015 Paris terrorist attacks. Many educators from around the globe used X to seek resources and support during the early-phases of COVID-19 pandemic emergency remote teaching (Greenhow *et al.* 2021, Trust *et al.* 2020). The traffic associated with different hashtags varies as well; for example, the prevalence of hyperlinks, retweets and replies can vary substantially across different hashtags (Carpenter *et al.* 2022).

In terms of challenges, some X hashtags have also featured large quantities of self-promotional and spam content that may affect educators' experiences (Staudt Willet 2019, Carpenter *et al.* 2021). Due to the relatively unbounded nature of X content compared to other social media, educators must also navigate the risks associated with context collapse (i.e. that content may be viewed out of context by people who were not the intended audience; Marwick and Boyd 2011). And more recently, changes to X's ownership and policies have caused concern among educators who have invested substantial time into developing professional networks via that platform (Ofgang 2022).

Although a significant body of literature exists regarding educator X use, social media can be employed by educators in various ways and for diverse purposes (Trust *et al.* 2016). Furthermore, social media have been described as presenting researchers with a 'moving target' (Hogan and Quan-Haase 2010, p. 309) as uses are unstable and protean, and indeed there is evidence that educator X use shifts over time (Carpenter *et al.* 2022). Digital trace data from X have until recently been relatively accessible to researchers and can provide valuable insights into educator use of the platform (Malik *et al.* 2019). However, digital trace data inevitably focus attention on the more active X users who leave those traces, such as the most active 20% of users who produce more than 80% of the content on most education-related hashtags (Carpenter *et al.* 2022). Meanwhile, the meaning that users make of their X experiences, particularly among users who prefer to lurk on the

platform (see Woodford *et al.* 2023), may be missed. Furthermore, due to decisions made by the platform owners, digital trace data from X have recently become more difficult to collect.

Education-related X chats

Like some other online spaces, X hashtags are employed in various ways, including both *asynchronous* and *synchronous* activities. Many tweets are sent without an expectation of an immediate reply and may not be in response to a particular thread of conversation. Chats, however, are also a popular and more conversational use of the platform for professional discussions among educators (Rehm and Notten 2016, Gao and Li 2017). For more than a decade, many education-related hashtags have featured weekly, hour-long synchronous chats, although the frequency and length of chats vary (Carpenter *et al.* 2022). Moderators typically guide the flow of the synchronous chat sessions by using a series of numbered questions or prompts created in advance, and by responding in the moment to ideas shared by participants. In some instances, the same individuals have been moderating chats for years, while leadership of other chats has been more fluid, with the current moderators having taken over from previous leaders or moderation being shared among a large team (Mercieca and McDonald 2021).

X chats have been shown to bring together educators from various roles and to connect people who might not otherwise have venues to meet and interact (Rosenberg *et al.* 2020). Many chats are relatively self-contained events that transpire primarily during the predetermined synchronous event time. Past research pertaining to chats has typically defined chats in synchronous terms (e.g. Greenhalgh *et al.* 2020, Rosenberg *et al.* 2020). However, the open, unbounded nature of Twitter means that users can still easily read chat content after the scheduled chat time, and may subsequently respond to and discuss content. There are also models of chats that are less based on synchronicity; for example, *slow chats* are not as focused on immediate interaction, as questions or prompts and their subsequent discussion can be spread out over a day or week (Gronseth and Bauder 2022). The monthly #edureading chat encourages participants to read selected academic articles related to education, reflect on questions about the article using the Flip video platform, via an ongoing X slow chat, and then join in a synchronous chat at the end of the month (Mercieca and McDonald 2021, Kolber *et al.* 2021). Distinctively, across these various chat formats there appears to be a focus on discussion and interaction, in contrast to uses of X that are more oriented towards information broadcasting or resource sharing (Carpenter and Krutka 2015, Kimmons *et al.* 2018). Interestingly, there is also a steadily increasing emphasis globally on the need for teachers to better engage with educational research. The Q Project is an Australian first in investigating how research evidence can be used in schools (Rickinson *et al.* 2023). They note the important need for teachers to be supported in accessing research. Whilst subject associations and other educational groups struggle to begin to address this need, this is a supportive role that chats such as #edureading are already performing.

Several studies have described pre-service teacher (PST) engagement with education-related X chats (e.g. Luo *et al.* 2017) and have yielded somewhat contradictory results. Hsieh (2017) chronicled instances of missed learning opportunities by PSTs and emphasised the importance of providing explicit guidance on how to participate in chats. However, Journell and Gómez (2017) suggested that chats can create opportunities for PSTs that are difficult to replicate within a traditional classroom. Carpenter *et al.* (2023) reported that chats associated with a teacher-education program hashtag created new opportunities for PSTs to interact with program alumni as well as more in-service teachers.

To date, research on education-related chats has largely relied upon analysing digital trace data to make sense of chat content, topics and networks (e.g. Gao and Li 2017, Kerr and Schmeichel 2018, Carpenter *et al.* 2022), with the few studies that have attended to the meaning users make of X chats focusing on PSTs (e.g. Hsieh 2017, Journell and Gómez 2017). There is therefore a gap in

the literature regarding how in-service educators perceive their experiences with chats, what motivates their participation and how it contributes to their professional learning and practice.

Social learning spaces

Wenger-Trayner and Wenger-Trayner (2020) have recently defined Social Learning Spaces (SLSs) as a specific development of the Communities of Practice framework. SLSs include some of the features of the better-known Communities of Practice (Wenger-Trayner *et al.* 2014) such as being focused on people and participants' learning through mutual engagement. However, SLSs do not depend on the same set of participants coming together regularly and jointly completing set tasks:

Whilst a social learning space does have the learning flavour associated with Communities of Practice, it is not necessarily a community and it is not necessarily a specific practice. (Wenger-Trayner and Wenger-Trayner 2020, p. 32)

This flexible framework was chosen as it closely aligns with what occurs in X chats, where a relatively stable group of participants meet at a designated time online, while others contribute asynchronously and sporadically, but are still very much part of the learning space. The particular features of SLSs are:

- The focus is on people and their participation.
- Members drive the learning agenda.
- Learning is rooted in mutual engagement.
- The engagement pushes the participants' edge of learning.
- Meaning and identity remain central but based on caring to make a difference rather than competence in a social practice (Trayner and Wenger-Trayner 2020, p. 32).

X chats appear to embody these features in that the identities of participants develop around particular hashtags. Like-minded educators set the agenda and drive forward learning, often picking up issues and trends in education (Holmes *et al.* 2013). Peer-to-peer learning occurs that can bridge differences of geographical location, age, gender, experience, formal positions, and educational level. Connection and collaboration among educators who share common interests and needs can develop through chats and help participants to tweet beyond their existing follower networks. Chats can function as relatively level playing fields where educators of different status and sectors may interact more equally (Megele 2014).

Macià and García (2016) speak of the 'collective intelligence' and 'shared knowledge' that characterise online networks (p. 292). They suggest that these networks can respond to teacher needs possibly more than conventional forms of professional development. It is clear that different chats attract different participants with large global chats suiting some participants, with others preferring smaller, more intimate chats (Mercieca and McDonald 2021).

There are various levels of participation in chats. Whilst some participants actively participate with comments, likes, and retweets, others effectively 'lurk', viewing responses either synchronously or asynchronously, an increasingly accepted form of participation in social media (Woodford *et al.* 2023). Earlier foundational work by Lave and Wenger (1991) speaks of *legitimate peripheral participation* as the way newcomers begin to move into a community of practice. However, as well as newcomers there are also vicarious learners (Bandura *et al.* 1963, Mayes 2015). Fox and Varadarajan (2011) found in their analysis of more than 1800 tweets from Auburn University Pharmacy students that 61% of students indicated that they learned something about the course from reading their classmates' tweets. Although it is clearly vital for some participants to be more actively involved, it is important to recognise that in SLSs, those who lurk, or are vicarious learners, may do so for personal reasons to preserve their privacy or acceptable professional profile, whilst still gaining valuable learning (Woodford *et al.* 2023).

Methods

The research aimed to explore the social and professional value that educators gain from participating in education-related X chats, and how this aligns with what chat leaders have indicated about chats in previous research.

We anticipated that these educators would indicate that they have gained value in terms of their professional learning in participating in chats, and that chats can provide an accessible and valuable source of professional learning. Our research questions were:

- How do participants use education-related X chats?
- What professional value do participants gain from chats?
- What social value do participants gain from chats?
- What advice do users have for the efficient and effective use of chats?
- How does participant use, and perceived value, inform the design and implementation of chats?

This study adopted a sequential qualitative approach to study the experience of educators in using education-related X chats. First, we collected data via an anonymous online survey which – apart from demographic questions – focused primarily on open-ended questions rather than closed items such as Likert scale questions. The survey consisted of 21 items, 6 of which related to personal and professional demographics and the remainder relating to participation in chats and willingness to be interviewed. Alessi (2010) suggests that online surveys have advantages over traditional ways of conducting surveys, in that questions can be asked in a variety of formats, participant responses are recorded electronically and are immediately available to researchers, and the data can be readily downloaded. Furthermore, distribution through social media means that surveys potentially can reach a much larger and more diverse population than would be possible otherwise (Putranto 2019). Participants comprised a convenience sample based on their choice to complete the survey. An invitation to the survey was shared via the researchers' accounts on the X platform between late 2021 and early 2022. Invitation posts were tagged with various education-related hashtags,

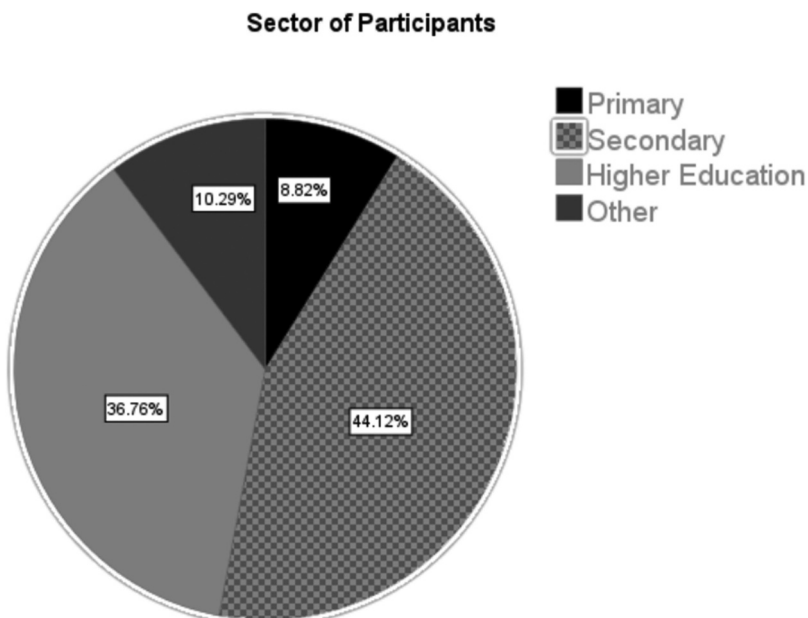


Figure 1. Sectors of survey participants $n = 68$.

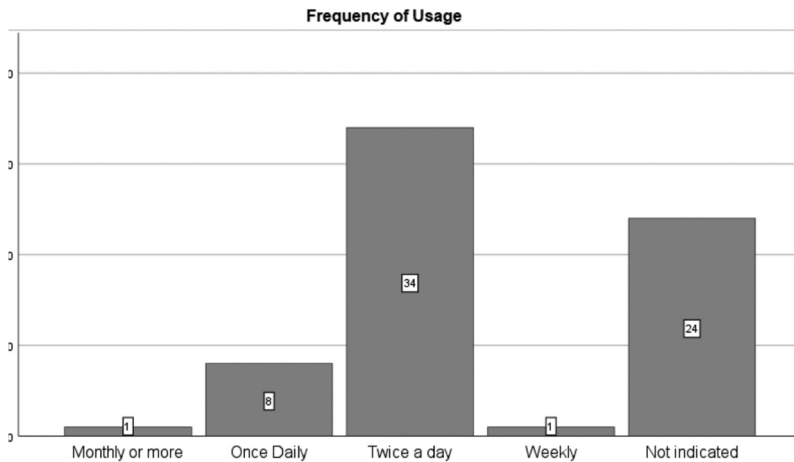


Figure 2. Frequency of twitter use.

Table 1. Interview participant (de identified) details ($N = 10$).

Pseudonym	Gender	Years of teaching	Country
P1	Female	17	Melbourne, Australia
P2	Female	2	Melbourne, Australia
P3	Female	23	Queensland, Australia
P4	Male	17	Scotland
P5	Female	15	Melbourne, Australia
P6	Male	20	Pakistan
P7	Male	13	USA
P8	Male	9	New Zealand
P9	Male	31	Sydney, Australia
P10	Male	11	Adelaide, Australia

including hashtags associated with various X chats (e.g. #edchat, #sschat, #edureading). Although the survey was distributed widely, participants primarily came from Australia and the USA. The 68 participants included those in higher education, primary or secondary schools and those outside these categories who were designated as ‘other’ (Figure 1).

The frequency with which survey participants accessed X is seen below in Figure 2:

From the survey sample, a smaller group of participants ($n = 10$) agreed to participate in a semi-structured interview. All of these volunteers were interviewed. Their details are displayed in Table 1.

Table 1 Interview Participant (de identified) details ($N = 10$)

Semi-structured interviews were conducted online with two of the three researchers present each time. The advantages of two interviewers have been highlighted by Monforte and Úbeda-Colomer (2021) who speak of the ‘practical wisdom’ that can emerge when interviewers take turns being the moderator asking questions and the assistant, observing, listening and reflecting and joining in where appropriate (p. 6). This was also a way of minimising unconscious biases and making more nuanced judgements about what occurred (Monforte and Úbeda-Colomer 2021). In presenting the findings below, interview participants are identified as In1-In10, with survey participants identified as S1-S68.

Our thematic analysis of both the interviews and the open-ended answers from the survey, using NVivo, allowed us to capture within our nodes (thematic annotations), ‘themes as shared meaning’ (Braun and Clarke 2021, p. 331) as we engaged in an ‘iterative process of inferences’ with each other (Levitt *et al.* 2018, p. 27). Working both individually and together remotely, we saw patterns emerge as we categorised nodes into two main categories with sub-sections reflective of the different experience levels and interests of our participants. We also drew on elements of the Social Learning Spaces Framework to inform our discussion and analysis.

Findings

The findings in this section are based on an integration of data from the 68 surveys and 10 interviews of our study. Our research aimed to explore the social and professional value that educators gain from participating in educational X chats in the context of Wenger-Trayner's and Wenger-Trayner (2020) SLS concept, and how our findings align with what chat leaders have indicated to us in previous research about the value they see in X chats (Mercieca and McDonald 2021). The results are organised around the framework of Social Learning Spaces outlined earlier. It should be noted that not all participants participated synchronously in chats, despite the common assumption that chats are synchronous in nature. For example, In 8 felt that it was more rewarding to engage more fully with the chat entries in his own time and around his own commitments. On the other hand, the conversational nature of chats seemed important to the many survey and interview participants who preferred the chats to typical X access. For instance, Survey S50 indicated: 'It [a chat] feels more social and friendly, like you really are talking to people, not just bots.'

Our findings reveal both the value of educators participating in X chats, either synchronously or asynchronously, and different approaches that emerged in the use of X chats that appeared linked to participants' experience levels. Although all participants value social connection, early career teachers were more focused on gaining new instructional or curricular resources and strategies, whilst more experienced teachers appeared to value connecting with a broad educational community for dialogue and challenge.

The focus is on people and their participation & learning is rooted in mutual engagement

Participants valued the people they met in X chats and the support that they were offered. More than 15 survey participants and all interview participants felt very grateful for this support they received from more experienced teachers who so generously shared their ideas. This included follow-ups in terms of direct messaging that occurred for S18 who found that some other teachers not only shared resources but were willing to engage in Zoom chats with him if he became really stuck. In7 valued the quality and ready availability of the professional development on offer in X SLSs:

It was the least expensive and most directed PD professional development that I've ever had. I learned more in 15–20 minutes on Twitter about the topic than I ever could in the six-hour professional development.

Just simply amazing Findings such as these align with our earlier findings from X chat leaders who indicated that strong, professional, mutual engagement is established through chats (Mercieca and McDonald 2021). For instance, Mark Weston, founder, and leader of the #WhatisSchool chat referred to 'Velcro moments' – those 'hooks that hold teachers together and relationships that develop through Twitter' (Mercieca and McDonald 2021, p. 82). Velcro moments were what an early career teacher In2 experienced: 'Yeah, people just wrap their arms around me and give me all their curriculum, all the resources, anything I needed.' In this quote, In2 also represented a trend among early career teachers in our sample in terms of her focus on gathering resources and strategies via chats.

In2 further explained that she had connected with a woman who was just starting her consultancy company and who went as far as to offer her free mentoring. This likely would not have happened had In2 not put out her request for help to her X SLS. In fact, this early career teacher (ECT) felt that without the resources she gleaned from social media she would have 'burnt out' and left the teaching profession. This is noteworthy in the context of alarmingly high rates of teacher attrition in some countries, especially for those in their first five years of teaching (Amitai and Van Houtte 2022, Carroll *et al.* 2022).

The time-saving aspect of accessing ready-made resources from other participants through X chats was also pertinent to multiple participants. As In3 indicated, ‘Why should I recreate all this stuff on you know, World War I and things like that?’ She stressed, however, the importance of critical thinking in working out what was relevant for her context.

The social value of participating in X chats also emerged clearly in our data, with all interviewees and 15 survey participants mentioning this aspect. For instance, In7 valued the opportunity provided in chats to meet a diverse range of people as equals:

I mean, where else are you gonna meet—say you’re a first-year teacher. You’re going to meet superintendents and board members . . . you’ll meet more members from different school districts around the country.

The sense of X chats being a friendly and accessible place comparable to a staff room was evident in In5’s reflections who spoke of chats as a ‘second staffroom’ - a place where she could go to talk to people about school issues. It also aligns with how #edureading chat founder and leader, Steven Kolber compared chats to a ‘campfire’ or a ‘watering hole’ space, where participants can find support, inspiration, and a listening ear (Mercieca and McDonald 2021)

Members drive the learning agenda

Chat participants worked in and adapted to different circumstances and consequently drove the learning agenda. In particular, Covid lockdowns during 2020 and 2021 brought X chats to the fore for some participants as they sought to find ways to work effectively in online teaching environments. Several participants mentioned that there were perceived to be very few other avenues for accessing professional support at this time with other teachers at their schools equally under pressure (Harvankova *et al.* 2021). In6 found particular benefit in accessing resources from X chats for multi-grade classes and to address their gaps in learning:

I usually take their lines for classroom methodologies, and I do apply in my classes, especially in primary and secondary classes, especially in the COVID-19 perspective.

This aligns with an Australian chat leader who referred to the ready availability of X particularly for teachers in rural and remote areas, summed up as: ‘professional learning in the palm of your hand’ (Authors 2021, p.85).

From a higher education perspective as a program lead, In4 was able to use resources from X chats to ‘build ideas into the long-term strategic plan especially around research.’ Chats were found to be a very appealing part of the X platform for many participants. S50 found that the chats allowed for ‘more conversation and context gathering’ and that the resources shared were more ‘focused.’

The engagement pushes the participants’ edge of learning

Particularly for the 8 more experienced teachers in our interview sample there appeared to be more focus on pushing the edge of their learning by engaging with broader educational ideas, contacts and innovations or challenges. In8, for example, enjoyed the ‘more academic aspects of teaching’ that he found in X chats, which he reported were not necessarily readily accessible in his local education environment. He found that chats inspired him to ‘make it more of an academic discipline of teaching rather than just practice.’ He referred to a particular type of chat organised in Australia, #edureading, which fosters an academic focus. The facilitator provides a scholarly article each month on a particular topic for participants to read and reflect on via social media over the course of a month. In3 found it valuable and enjoyable to access different views on a reading from, ‘a collaborative group of people with a similar interest who may come from very diverse backgrounds and diverse contexts.’ Similarly, In2 found that even if she did not attend the live monthly #edureading chat, she was still sent the article each month by the facilitator which allowed her to benefit from the reading and asynchronous engagements with the chat.

Participants valued the succinct nature of X chats and the ability to scroll through very quickly or search the hashtags and find useful information. In7 in comparing Facebook and X found that X was more fast-paced and contained more relevant material. Others such as In4 suggested that in chats users can interact with important people in various education fields, and recommended that others ‘not be shy as well, because of the democratising open nature of Twitter. You can contact them and say, send a direct message to people.’

Meaning and identity remain central but based on caring to make a difference rather than competence in a social practice

X chats provided professional conversations for participants, particularly more experienced educators to extend their learning in broader ways to build their professional identity and make a difference in their educational environments. In 9 for example, felt the ideas he gained from the chats influenced how he set up his vision and goals for the teams he co-ordinated. This is a less known aspect of X chats. He felt that chat discussions ‘brought more meaning to teaching’ and allowed him to keep abreast of emerging trends in his field. In8 valued how participation in chats provided a focus on the more academic discipline of teaching rather than just rolling along immersed in day-to-day practice.

Chats also supported participants like In3 who were engaged in academic study such as for a master’s degree. She found that there were not many people in her workplace that she could talk to about her academic coursework and assignments. However, in X chats she was able to connect with other educators, and people in a range of different positions throughout Australia. She noted that in schools there may be limited access to academic databases, but through #edureading chat she was able to find articles that she would not otherwise have encountered. The professional contacts and opportunities that participants have accessed through X chats are also significant. I8 for example was offered the opportunity to write a chapter for a book because of an X connection, whilst In1 was able to connect with a Mathematical content expert and share ideas with him on a regular basis. This is the type of mutual engagement which pushes the participants’ edge of learning and demonstrates the level of care that some more experienced educators offer to younger teachers. As In7 summed up the benefits of chats, saying, ‘I think that if you want to grow your profession, whatever your profession is, whatever your interests may be, Twitter is the swap meet place to go.’ In3 was a regular chat participant, enabling ‘amazing contacts’, some of whom were subsequently invited to their school for PD sessions.

Finally, several individuals commented on how participating in the chats has built their professional identity, making them better teachers. S17 felt chat participation had brought more meaning to their teaching and given them the confidence to implement new, innovative ideas. Similarly, S22 felt participating had increased her understanding and joy in teaching, making her overall a better teacher. In9 shared readings found via X chats with his principal and said this had influenced the approaches to professional learning in their school.

Community can be created globally through X chats, and this was particularly evident with participants such as Australian teacher In7 who connected with an Art teacher in Florida via a chat and ended up meeting up with her regularly throughout a year on another hashtag they set up for themselves to develop curriculum ideas. Similarly, In8 connected with a Russian educator via a chat and began working with them to develop different videos which were used for live streams they jointly shared. Finally, S15 referred to collaboration with educators across the globe she had met through chats that allowed her to set up video conference lessons between different international classes, whilst In1 was excited to meet up with an academic he had connected with via a chat and with whom he subsequently spent time at a football match.

Discussion

The findings of this research provide insights into the social and professional value of educational X chats. Our findings align with prior research that has suggested social media use by educators can contribute to the development of ‘collective intelligence’ and ‘shared knowledge’ (Macià and García 2016, p. 292). Participants’ reports coincide with the findings of Carpenter *et al.* (2022) regarding the potential value of global connections made through social media for teacher collaboration and co-construction of teaching practices and materials, and also reflect the understanding of Rosenberg *et al.* (2020) that X can bring together people who might not otherwise be able to meet because of geography.

Direct contact with, and response from leading and/or senior professionals and the democratising open nature of X was a theme that emerged in the data. However, there was also general agreement that teachers or pre-service teachers need a scaffolded introduction to chats to help them get started effectively, as seen in previous studies (e.g. Hsieh 2017). This points to the potential need for pre-service teachers to be introduced to social media learning opportunities and receive guidance regarding wise use during their teacher education courses. It also highlights that while X chats may result in some democratising interactions among users from different roles or at different levels of education hierarchies, factors such as differential familiarity with platform features, norms, and cultures, as well as extant online and offline social capital can limit some users participation or impact chat experiences in other ways (Rehm and Notten 2016).

Megele (2014) likens chats to the Socratic circles where participants engage in collaborative dialogue and boundaries are collapsed – ‘overlapping boundaries of private and public as well as personal and professional spheres’ (p. 49). Our findings also suggest the collapsing of the assumed boundary between synchronous and asynchronous that has characterised prior work on X chats (e.g. Greenhalgh *et al.* 2020, Carpenter *et al.* 2022). Although synchronous chat engagements appeared to be important to many educators in our sample, various participants did not consider their engagement with chats or the benefits they derived from chats to be solely defined in synchronous terms.

The diverse nature of X chats, and engagement with chats, was reflected in the #edureading chat upon which various of our participants commented. This chat explicitly includes synchronous and asynchronous discussion via the hashtag, and offers unique value through its emphasis on improving teacher access to educational research. A process of reading research papers, and the subsequent chat discussion aligns with the current push for better informed teachers who engage with educational research (Mills *et al.* 2021, Means *et al.* 2009). Some types of research papers are perceived as less useful for teachers or education decision makers (Means *et al.* 2009), and to have research material digested and discussed by a wide range of teachers in a supportive online environment can only be of benefit to both educators and students. The Monash University Q Project (2023), which promotes the integration of educational research to improve teacher quality and capacity building, notes that many teachers struggle to find appropriate support to access such research (Rickinson *et al.* 2023). Meanwhile, participants in the #edureading X chat have educational research regularly delivered to their social media feeds, and the opportunity to reflect on and discuss it throughout an entire month. The value of this is clear at a time when schools find it increasingly difficult to release teachers for research activities and educational institutions are lagging behind in their provision of such support (Rickinson *et al.* 2023). As our title notes, *Learning in the palm of your hand* may offer a practical and convenient way of accessing educational research.

However, access to chats and their potential benefits mostly depends on individual initiative and is usually undertaken outside regular working hours. Considering the potential benefits of educator social media use reflected in our participants’ experiences, such forms of professional learning arguably need to be validated as a form of professional development, with the time allocated being recognised and linked to professional qualifications. This would potentially extend the social and professional learning impact of educator social media activities. It should be noted, however, that

given recent changes to X's ownership, algorithm, and platform, there is some uncertainty regarding what the future holds specifically for education-related X chats. Nonetheless, the needs and interests that appear to motivate educators to invest some of their precious time in professional social media use are not likely to go away. So despite the evolution or fate of individual platforms, many educators will likely continue to engage with social media of some kind for professional purposes, and research on X chats can inform future research on other platforms as well.

An aspect to consider around the application of educational use of X is how pre-service and early career teachers are made aware of uses of social media for professional and social support. Data indicates the need for guidance and training in accessing and contributing to professional social media spaces before graduation. Additionally, as leadership work in educator social media spaces is often voluntary, coaching or mentoring in the facilitation of activities such as chats, and how to build social capital would be beneficial. Universities could do more in their pre-service teacher education programs to promote the importance of developing professional learning networks and understanding how social media can play a role in such development (see Hsieh 2017, Carpenter *et al.* 2023). Beginning teachers who are already familiar with professional social media use would potentially have ready access to professional learning in the palm of their hand as they move into a demanding classroom teaching role.

Several of the more experienced or veteran teachers in our sample had developed their usage of X over the 8–10 years or more that they had been using X. Some had over 3000 followers and described the platform as their public notebook, through the content that they like or retweet. They differed from early career teachers, as they were looking for challenging discussion and fellowship through the chats, rather than the desire to access teaching strategies. This is a key distinction that emerged in our research, and reflects the length of time that X chats have existed and the different perspectives of some participants who have been involved with the platform over many years.

The current research is limited by the number of interviews and survey respondents. The respondents may represent a minority group of proactive X users, and there may be many X-using educators not represented in this research. Further research is required to investigate how educators perceive the social and professional value of X chats, what motivates their participation, its contribution to their professional learning and practice and how this can be leveraged to support educational goals and outcomes. Studies that further explore the apparently somewhat blurred lines between synchronous and asynchronous social media activities by educators could also benefit the field.

Conclusion

Our research explored the social and professional value that educators gained from participating in X chats, as well as how our findings align with the literature and what chat leaders have indicated in previous research about the value they see in chats (Mercieca and McDonald 2021).

Data from the ten interviews and sixty-eight surveys indicated two main approaches to X chats, which appeared to be associated with participants' years of teaching, with early career teachers mainly seeking resources, while more experienced educators were seeking to connect with a wide educational community for a broad discussion of theory, issues, and challenges around their practice.

X chats proved valuable for educators who had little access to professional support during the COVID-19 pandemic, providing resources, support networks and a global community that reduced the sense of isolation. Respondents valued the democratic nature of X (Heggart and Kolber 2022), with educators of different status and sectors interacting as relative equals; for example, ECTs interacted with experienced educators and/or senior professionals.

Chats provided opportunities to engage in professional conversations, keep abreast of emerging trends, connect with colleagues, and build confidence to try new and innovative ideas. They also stretched participants' edge of learning (Wenger-Trayner and Wenger-Trayner 2020) and in the

case of one particular chat provided tailored access to educational research for time-poor teachers (Rickinson *et al.* 2023).

Disclosure statement

No potential conflict of interest was reported by the author(s).

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