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Leading the conversation

**The use of Twitter by school leaders for professional
development as their careers progress**

by

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A thesis submitted to the University of Birmingham for the degree of
Doctor of Education

Department of Education
University of Birmingham
February 2016

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Abstract

A purposeful sample of 21 school leaders from the UK and abroad were interviewed about their use of Twitter. The Twitter timelines of these respondents were also analysed. The study was framed around four research questions designed to interrogate the issues surrounding senior leaders' use of Twitter.

The data collected pointed towards the growing importance of Twitter as a forum for discussion about a whole gamut of issues related to education and leadership. The research uncovered important ways in which Twitter is being used to supplement, or in some cases replace, traditional modes of professional development. This is seen to have implications for the way leaders' careers evolve over time.

A revised model of leadership career progression is proposed. The revised model provides a conceptual framework for charting social media engagement amongst leaders as their careers progress. By systematising social media engagement in this way, the study makes an important contribution to the corpus of knowledge that already exists in relation to social media use in educational settings.

Practical implications include, amongst other things, suggested changes to the professional development of leaders and a call to greater awareness of social media amongst leaders themselves.

Abstract word count: 194

I had (and still have) a dream that the Web could be less of a television channel and more of an interactive sea of shared knowledge. I imagine it immersing us as a warm, friendly environment made of the things we and our friends have seen, heard, believe, or have figured out. I would like it to bring our friends and colleagues closer, in that by working on this knowledge together we can come to better understandings (Berners Lee, 1995, online).

Acknowledgements

My grandfather died in 2004 and, as is the way with these things, his belongings were farmed off to various members of the family. He had been a teacher for most of his adult life. Given that I was a grandson earning a living from the same profession someone saw fit to pass on to me his copy of 'Delusions of Grandeur' by John Rae. I had no idea who Rae was at the time – his career having ended more than a decade before mine began. But I read his autobiography with interest nonetheless. In an early chapter Rae recounts his decision to study for a doctorate in order to help him stand out from the crowd as he cast around for headships.

Following Rae's example, I came to think I ought to do the same thing. The enterprise has been exhausting and rewarding in equal measure. It has dragged on a little longer than I might have hoped, and it might have dragged on longer still had it not been for the spur my ambitious and hard-working sister provided in finishing hers first. I have spent far longer than is healthy in front of a computer screen, all on my own. But the support given to me vicariously by the other EdD researchers I've met on Twitter has been immense – not least in providing constant (and distracting!) reassurance that I was not alone.

My supervisor, Tom Bisschoff, has kept me on the straight and narrow with well-timed prods via e-mail, goading me to greater action. Similarly the detailed critiques provided by Michael McLinden have been invaluable in helping me refine my writing. Most significant of all though the calm, reassuring words of Chris Rhodes – now sadly retired – have been my constant companion: 'How do you eat an elephant? Bit, by bit, by bit...'

My wife, Jo, and my children, Ruth and Jacob, have had to contend with a detached and too-often-absent father for close to five years. Wherever this enterprise takes me next I plan to spend more time with them and less time in front of a screen.

But I will not forget what I've learnt. And Twitter - or whatever social network supersedes it - will be an integral part of my professional life from now on. It is significant that, as things drew to a close, @jillberry102, a loyal Twitter friend, took it upon herself to read the whole thesis. She then spent a good two hours with me on the 'phone pointing out typos. Thank you, Jill. I have made fantastic discoveries, new friends and, above all, become a better teacher because of it. I owe Dorsey, Williams, Stone and Glass more than they will ever know.

Tim Jefferis
Oswestry
May 2016

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A. Context of the study

The internet has taken over our lives. If Facebook were a country it would be the third most populous on earth (see Figure 1). As of July 2014 there were 200 million Twitter users, generating well over 500 million Tweets¹ per day (BBC, 2014; Holt, 2012) with the numbers of active users growing all the time. Dick Costolo, the CEO of Twitter, states his ambition ‘is to have the largest information network in the world’ (Bercovici, 2014). And it looks as if he is already making excellent progress along the way to achieving this ambition: the company has more than quadrupled its revenues since 2012 (Economist, 2014).

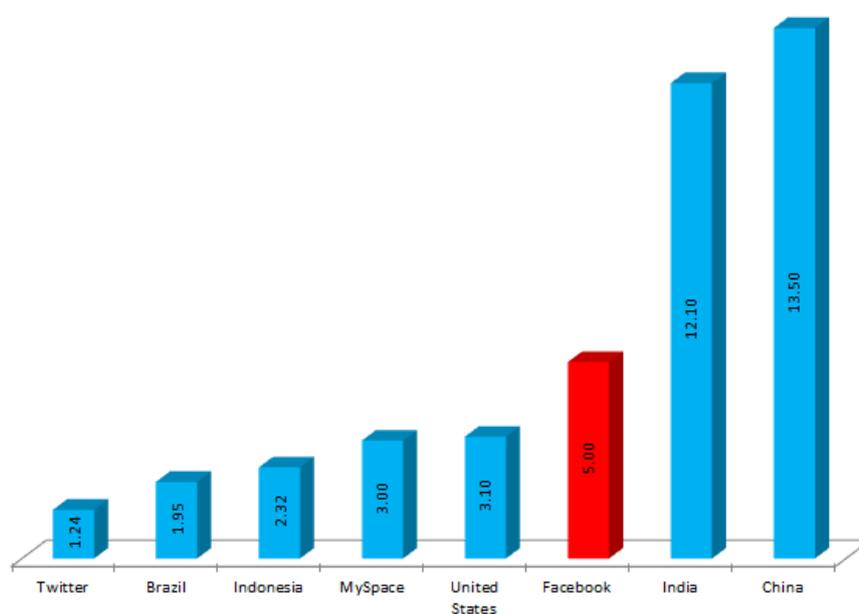


Figure 1, Facebook ranked by population (figures shown are in 100s of millions and are taken from Marrs, 2010)

Meanwhile, 62% of young employees say they could not live without the internet, whilst two thirds of school pupils globally would choose an internet connection over a car given a choice between the two (Cisco, 2012). Every day more people join social networks and, as they do so, add to the global repository of publicly available information. Even those not

¹ Twitter’s brand policy stipulates that the words Twitter and Tweet should always be capitalised, so this is the convention adopted in this thesis (see here: <https://goo.gl/iez8ij>).

normally disposed to taking up the latest techno-fad have found the urge to join in irresistible. In October 2014 it was even reported that Her Majesty the Queen had opened an account (Economist, 2014). These same networks are revolutionising the educational enterprise. More than ever teachers, pupils, parents and support staff have to be comfortable with the new digital environment. Reflecting an explosion of interest in the area, a rash of articles and books have been published in the last few years on the use of social media by educators (Dixon, 2012; Williamson and Johnston, 2012, for example). Blayney-Stuart, head of research at the Chartered Institute of Marketing, and an active commentator in the field, makes it clear that schools and their leaders need to embrace the new technologies:

The reality is that the conversation is being had anyway and the very least schools should be looking to be a quiet observer rather than avoiding it altogether. Invest in a little training for the right people and that will help you manage the risks while taking advantage of the benefits social media can bring (quoted in Kearley, 2012, p. 16).

But fear still remains. As Roberts (2013, p. 34) points out:

Although some schools use social media in innovative ways, it is a tool that is still relatively underused in education. Teachers, on the whole, remain sceptical about the positive impact that Facebook or Twitter can have on learning, and a lot are simply afraid of it.

This fear is borne out in a study carried out by the American researcher Deyampert (2013). Employing a piece of action research, Deyampert trained eight primary school teachers in the use of Twitter. He encouraged them to use it to develop a 'professional learning network' (PLN) and to connect with other educators for resources and ideas. Whilst a few of the studied teachers took to Twitter enthusiastically, others found that they did not have time to Tweet and lacked confidence in the credibility of other Tweeters. Several of the teachers completed the study disillusioned and uninterested.

Indeed, all eight of Deyamport’s interviewees had reservations of some sort (see Table 1):

Participant	Reservations
Carolina	Limited time to Tweet; not a good fit with professional life.
Julissa	Took too long to learn the new tool.
Sarah	Was too easy to get distracted; lacked time to Tweet; was uncertain of the credibility of some people on Twitter.
Parker	Took too much time to learn the new tool; had too little time to Tweet; the access to Twitter was restricted in school.
Henrietta	Took too much time to learn the new tool; information overload.
Paul	Lacked time to Tweet; doubted the credibility of some on Twitter.
Wilhelmina	Lacked time to Tweet; felt the technology was not intuitive.
Sanaa	Lacked the time to Tweet.

Table 1, Reservations about Twitter use (Deyamport 2013, p. 89)

But just as some teachers have reservations, others have adopted Twitter enthusiastically. In late 2014 500 million Tweets were sent each day of which 4.2 million were directly related to education. As Stevens (2014, online) explains:

To put this in perspective, while you read this past sentence, over 3,000 edu-related Tweets have flown across the Twitterverse.

Unsurprisingly Twitter itself is awash with Tweets and links to blogs championing its use as a professional tool. A modern foreign language tutor on York University’s PGCE course explains how her students use the medium:

... more and more teachers confidently share what works for them in the languages classroom. Linguists gather online to swap web links to useful language teaching materials and, more importantly, are hugely supported and encouraged when experimenting with new teaching ideas, helping them to reflect on their own practice (Bewell, 2013, online).

In an attempt to explain to newcomers how they might use the platform, Jones (2013, p.5) identifies six ways in which Twitter can be used by teachers to enhance their professional development in a ‘speedy, flexible and thrilling way’ (see Figure 2):

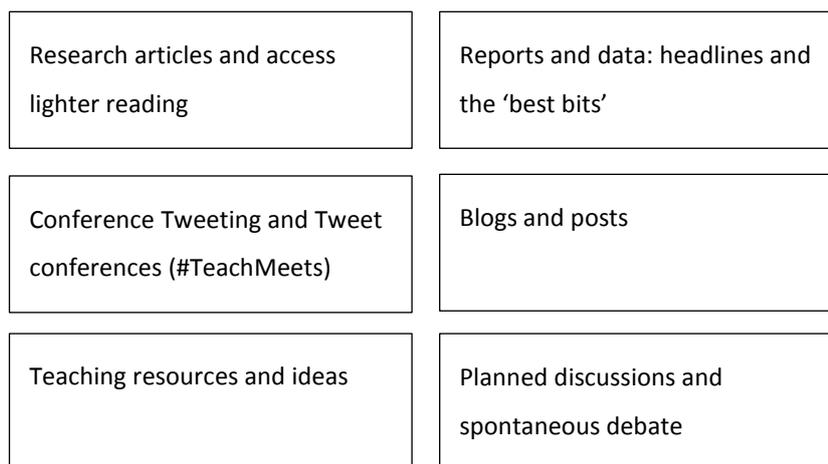


Figure 2, Some of the uses of Twitter for teachers (Jones, 2014, p. 5).

Indeed, such is the potential power of social networking (including the possibility of a post going viral and reaching an audience of millions), that there is a growing consensus that schools and their leaders cannot afford not to embrace the new technology. Smith (2013, online) puts it succinctly:

Connecting isn't just for kids.... Conversing and collaborating with educators all over the world means that everyone benefits from sharing best practice and implementing it in their schools.

As Smith makes clear, this is a serious business with wide ranging implications for schools, colleges and universities. Nor is the potential to be tapped confined to pupils and classroom teachers – senior leaders can get in on the act too. Indeed, some of the most vociferous champions of social networking are school leaders, many of them head teachers.

According to Elias (2012, p. 30) it is 'only natural' that social media networks provide the structure for the 'personal and professional growth of school leaders'. This blog post from the head teacher of Highbury Grove School in Islington, London reinforces Elias's view. It encapsulates the enthusiasm of some school leaders for social networking. In this case Twitter specifically is being discussed:

I've 'met' some great fellow educators on my phone and iPad and I've met some in real life too. I've read fascinating papers and articles, and been guided to books that

have changed the way I teach and learn. It encouraged me to start blogging. It's allowed me to enter into feisty and enlightening debate... I've even been offered a job. Do it. And recommend it to others. (Sherrington, 2013, online)

The community Sherrington describes forms part of the same 'personal learning network' (PLN) that Deyamport identified in his study (see page 3). A broad and effective PLN is something many teachers on Twitter (commonly referred to as 'tweeps' or 'tweachers' – see Table 4 on page 26) have gone to great efforts to construct. As an illustration of this, the prolific American tweep @bleidolf67, an active participant on the Teachthought² website, encouraged fellow tweeps to blog about their PLNs as part of her 30-day blogging challenge. Over 100 tweeps participated³ and were effusive in their praise of value that their Twitter-based PLNs had brought to their professional lives (see Figure 3 on page 7).

² <http://www.teachthought.com/>

³ A full list of tweeps who took part in the challenge, which began on September 1st 2014, is found here: <https://goo.gl/XyO8Wc>

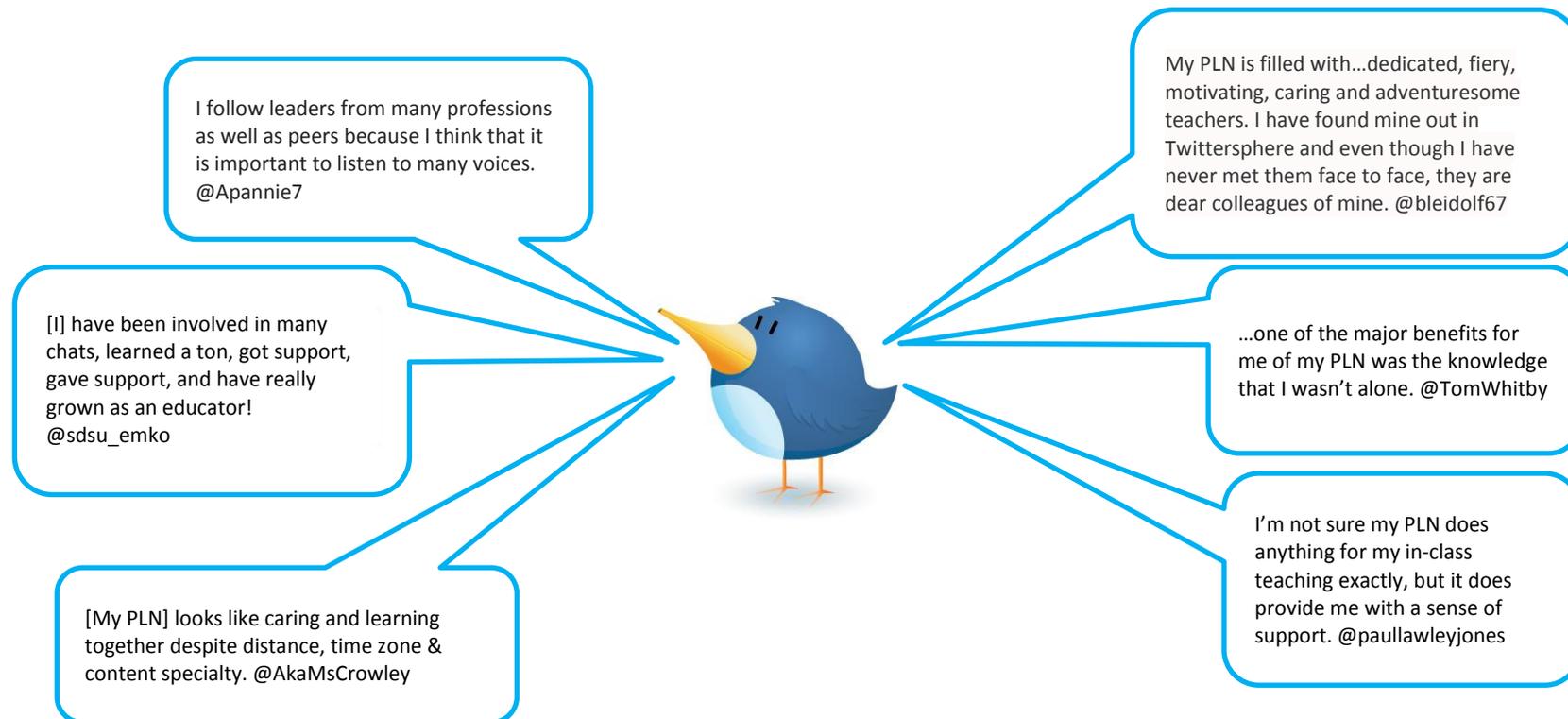


Figure 3, Selected tweeps who took part in the @teachthought 30-day blogging challenge extolling the virtues of their PLNs.

But it is not just on Twitter itself that the usefulness of the medium is championed – more traditional forms of peer-reviewed publication also point to its usefulness for leaders in schools. Dixon (2012), for example, cites Twitter as an essential tool for head teachers and draws attention to its power to transform the way some of the traditional functions of leaders are carried out as in Table 2:

Task or Goal	Traditional Method	Using Twitter
Directly reaching out to a local celebrity	You would call the celebrity’s office, write him or her a letter, or work your network to try to get his or her attention.	You can use the celebrity’s @username tag to make direct contact with him or her on Twitter.
Reminding students and families about a school event	You would send a newsletter home, make phone calls, or post the event to your school website.	You can post the reminder on your Twitter account.
Finding great articles to read on your topic of interest	You would scan the table of contents of education magazines or websites.	You can use keywords on search.Twitter.com to discover articles recommended by people you trust.

Table 2, Some of the ways in which Twitter has changed the way school leaders go about their tasks (Dixon, 2012, p. 48).

Added to this, the sort of professional development offered by social networking sites like Twitter is seen by its champions as more democratic, more collaborative, more easily accessible and – much to the delight of those involved in school finance the world over – often totally free (Elias, 2012). In this respect, as in many others, social networking stands in stark contrast to more traditional forms of professional development that can be ‘fleeting in duration, narrow in focus and top-down in [their] creation and delivery’ (Rutherford, 2010, p. 61).

In light of its burgeoning importance then, this study, as will be explained, explores the use of Twitter by senior leaders in schools and makes an attempt to uncover the extent to which the social network is impacting upon their professional lives.

B. Antecedents of the study

Anyone who has kept their eye on the national and international news over the past few years will recognise that there is an ever expanding interest in the use of social media across a broad range of disciplines. However, given that social networking only really took off in a

big way after the millennium - Facebook was founded in 2004, whilst Twitter was founded in 2006 - much of the literature in the field is both web-based and extremely recent. It often takes the form of 'grey literature': unpublished blog posts, remarks on bulletin boards and in comment streams and, of course, discourse on social media platforms themselves. In this sense it is material that academics used to paper-based, peer reviewed sources tend to be scornful and suspicious of.

Perhaps the weightiest body of antecedent literature comes from the business community. There has been a huge amount of material written about the use of social media and other Web 2.0⁴ technologies in business contexts. Much of this material, though by no means all, has focussed on the use of Web 2.0 technologies in marketing contexts. Comparatively little (though this is changing rapidly) has been written about the use of social media by head teachers. For the purposes of this study, which will seek to explore this area within the narrow confines of school leadership, there is a great opportunity to make an *original contribution* to the corpus of knowledge in this area.

A more detailed analysis of the antecedent literature appears in Chapter 2 (starting on page 20) but it is worth highlighting here a few studies that have focussed specifically on uptake and enthusiasm for social media in schools. In the USA, for example, a 2010 study found the following:

1. *Most principals [head teachers] are of the view that social networking sites have value in education as a way for educators to share information and resources; to create professional learning communities; and to improve school-wide communications with students and staff.*

⁴ Web 2.0 is the latest incarnation of the internet in which users are encouraged to actively engage with content, and to create their own material. Web 1.0 was an internet composed largely of static pages of information which users read, but couldn't respond to. Creating content on Web 1.0 was a specialist activity – the exclusive preserve of the most technically proficient. Today content creation has been opened up to all, with little or no specialist knowledge required in order to publish.

2. *Educators who have used social networking technology are more positive about the benefits than those who have not.*
3. *Educators who have joined a social networking site, and those who haven't, expressed a strong preference for joining a social networking site dedicated to education in the future.*
4. *If schools are to develop advocates for appropriate and effective integration of social networking with instruction, they will need to expose more educators to this technology (EDWEB, 2010, p. 4).*

This study involving, as it did, 1200 American educators, adds considerable weight to the circumstantial and anecdotal evidence of lively engagement with social media amongst teachers and school leaders that is available online. It is not unreasonable to conclude that the enthusiasm articulated by head teachers such as Sherrington (see page 5) is not only widespread, *but that it is also likely to grow.*

Added to this, and of particular relevance to this study, there is clear evidence in the literature that use of social media, contrary to popular perception, is not confined to the young. The average age of a Facebook user in 2012 was 40.5 years, whilst the average age of the typical Twitter user was 37.3 years (Pingdom, 2013).

These figures go some way to explaining the graph shown in Figure 4 that uses figures generated by the same American study discussed above. The graph suggests that engagement with social media is even more widespread amongst school leaders than it is amongst the (usually younger) teachers that they lead.

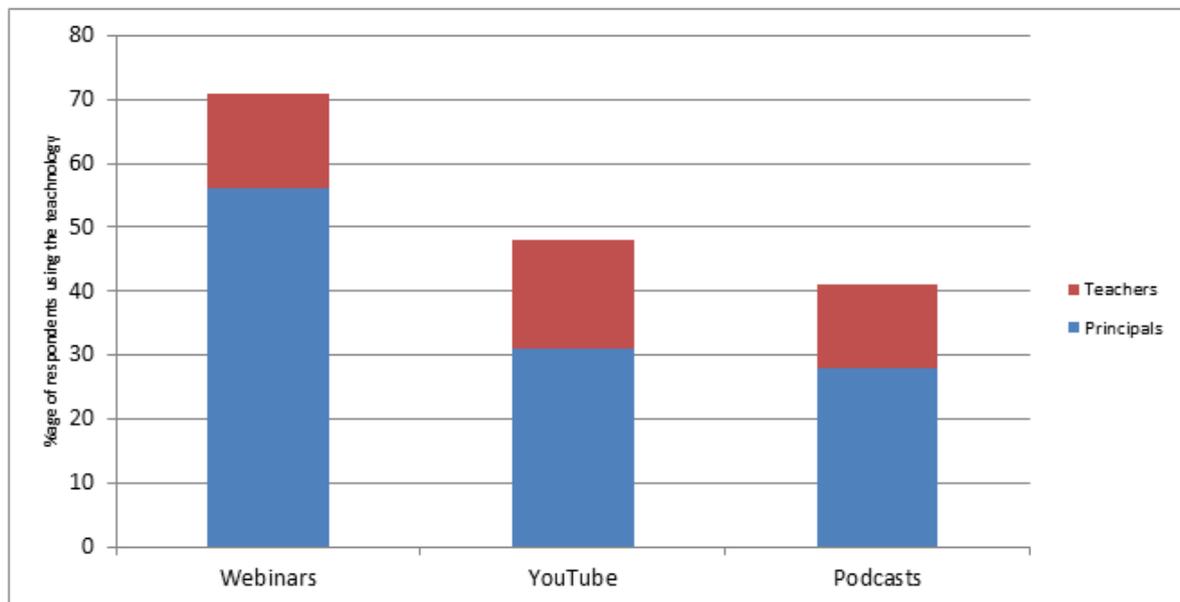


Figure 4, Differing use of Web 2.0 technologies between teachers and principals (eDWeb.net, 2010)

Thus there is a rich seam of potential research to mine in terms of what, how, why, where and when these leaders use social media. This study aims to find answers to some of these questions specifically in relation to the use of Twitter – a social network site that only represented one small part of the large EDWEB study described above.

Notwithstanding the evidence of enthusiastic engagement in social networking amongst senior leaders identified thus far, several studies identify schools as behind the curve in terms of their adoption of social media. There is evidence, for example, that a good number of school leaders still see social networking as something to be suppressed within their institutions. A plethora of ‘teacher-got-the-sack-because-of-Facebook’ headlines are at least part of the reason for this cautiousness (see Picardo, 2011 or EdWeb 2010).

The tide is turning though; Sherrington (see page 5) is not a voice in the wilderness. It only takes a cursory trawl of Twitter or Facebook to see that a growing number of school leaders are casting aside their inhibitions. Indeed the volume of traffic on some of these sites (300 billion pieces of new content on Facebook in 2010, whilst 25 billion Tweets were posted on Twitter in the same year) suggests that they are right not to ignore the huge potential for

gaining market share and personal influence that social networks offer (Pingdom, 2011). And more and more of those directly involved with either leading or teaching in school are sharing their thoughts online. The willingness of educators to create, as well as consume, content online was powerfully illustrated in late December 2014. In a superhuman effort to collate an exhaustive list of all the UK-based education bloggers @OldAndrew calculated that there were a grand total of 1050 active education bloggers in the UK⁵ – all of whom had been active online in the six months preceding his compilation of the list.

C. Nomenclature around which the study is based

For the sake of clarity I have restricted myself, so far as is possible, to the use of the terms contained within the title of this thesis and avoided straying into the use of related terms, meaning much the same things, but that which might nevertheless lead to confusion. The title of the thesis is as follows:

The use of Twitter by school leaders for professional development as their careers progress.

Thus **professional development** is referred to here and throughout the thesis not CPD, INSET, professional improvement or any of a panoply of related terms. Professional development is taken within this study to mean, very succinctly:

[The] process of improving and increasing capabilities of staff through access to education and training opportunities (Gruich, 2014, p. 376).

This broad definition leaves space for professional development to include many types of activity including, but by no means restricted to, traditional face-to-face delivery, one-to-many taught training courses and their web-based alternatives. It recognises that development can also be provided in many other less formal ways too: including coaching or mentoring, collaborative planning and teaching, and the sharing of good practices. Plenty of

⁵ This fruits of this wonderfully public-spirited task are available for all to see here: <http://goo.gl/N8IVoZ>

room is left for the possibility that some such activities may be carried out informally over the internet. Room is also left for discussion of the way in which such processes might change over time as leaders' **careers progress**. In this sense the career arcs of leaders – developing sequentially over time – offer one way of looking at professional development. To remove any ambiguity about the focus of the study in this sense, career progression is also explicitly mentioned in the title. Reference to career progress explicitly signposts the fact that leaders' careers often follow an arc over time, sometimes depicted as a series of sequential steps, as we shall see later.

In the context of this study the term **school leader** is taken to include any individuals who have involvement in their organisation at a level above a middle leadership position. In short, it includes all leaders in schools with *school-wide* responsibilities. The job titles of such individuals varies greatly between schools, especially as this study involved contact with educators overseas. Nonetheless, in the UK most people would recognise assistant heads, deputies, heads and governors as all falling into the category of being school leaders in the sense I define them here. Such people were approached as potential study respondents at the exclusion of all others. Thus this study investigates the extent to which school leaders have used Twitter to take control of their own professional development. There is valuable research to be carried out into the use of Twitter by classroom teachers and by middle leaders, but such lines of enquiry fall outside the confines of this study.

Leaders, of course, are involved in leadership and there is some controversy within the academy as to what leadership actually entails (Bush and Glover, 2003). But these authors go on to identify three key components of successful leadership: vision, values and influence. Following a discussion of these components they go on to define leadership as follows:

Leadership is a process of influence leading to the achievement of desired purposes. Successful leaders develop a vision for their schools based on their personal and professional values. They articulate this vision at every opportunity and influence their staff and other stakeholders to share the vision. The philosophy, structures and

*activities of the school are geared towards the achievement of this shared vision
(Bush and Glover, 2003, p. 8).*

In this study the term **school leader** is used with reference to this definition of leadership. In this way it is understood that being a leader is a complex and multifaceted role.

Twitter itself is a social media application. More specifically it is a micro-blogging platform that restricts users to typed utterances of 140 characters or fewer. It has associated with it a great deal of specialist terminology (see Table 4 on page 26). Its operation is described in more detail on page 27.

D. Focus of research

Though there are numerous social networking platforms this study homes in on just one – Twitter – and attempts to shed light on the way the platform is being used by senior leaders in schools. There are several reasons for this narrow focus:

1. Unlike some other social networks, all interactions on Twitter (with the exception of direct messages, and interactions on locked accounts) occur in public *and are therefore visible to all*. This presents the researcher with access to a wealth of information to analyse without needing to worry about the usual stumbling blocks for research: low response rate, complex and time-consuming ethical issues with data collection etc. (ethical issues are discussed in more depth on page 129). The uniqueness of Twitter in this regard has been highlighted and capitalised on by other social media researchers too. Elias (2012, p. 6), for example, writes that he 'chose Twitter because, due to its public and open nature and rapid growth, it seems to be the site where most educational leaders connect'. The preference educators have for using Twitter is also borne out empirically. For example, Saunders' (2014) study of social media use by teachers for professional purposes found that 93% used Twitter compared to just 60% using Facebook and less than 30% using LinkedIn.
2. The size and scope of the study means that the incorporation of more than one social network is not feasible. Additionally, focussing on more than one network

would be likely to result in data-overload and thus hamper efforts to uncover sense and meaning from the information gathered.

3. For the time being at least, Twitter is the social media platform of choice for individuals who want to market themselves professionally. True, Facebook and LinkedIn have large followings, and other social networks (Tumblr, Google+, Pinterest) are growing fast, but Twitter dominates when it comes to open communication between users *in a public forum*. Thus it makes sense to focus exclusively on Twitter in this study. As Elias (2012 p. 6) explains, other social networks ‘eschew an open model where any user can follow any other’.

But even by cutting out reference to rival social networks and focussing in on Twitter, the potential pool of information is still too vast to be able to extract meaning. As we have seen (page 2), an average of over 500 million Tweets are sent every day – a quite staggeringly large volume of information; certainly far too much for a single researcher to cope with. So, to add further to the manageability of the sample, this study homed in on the use of Twitter by just a small group of (21) school leaders (biographical information on the study participants is shown in Table 14 on page 136).

E. Research questions

Having delimited the size and scope of the study, and provided the rationale for doing so, and having outlined the growing importance of Twitter in school leadership, the following research questions emerge (note that an explanation of *how* these questions emerged, following a review of the literature, appears on page 101):

1. Why are certain senior leaders using Twitter?
2. How deep and broad are the Twitter networks of the sampled school leaders?
3. What are the ways in which Twitter has contributed to school leaders’ professional development and career progression?

4. How might Twitter affect the professional journeys of school leaders and so impact on the on-going usefulness of Gronn's (1993)⁶ career progression model?

These questions arose as themes surfaced from the literature and as the research progressed. They attempt to capture the full spectrum of material that was uncovered as the research project unfolded – hence the interrogative formulations: why? how? what? These formulations are supplemented by a final question which looks to the future and invites consideration of a conceptual framework that might apply to leaders' behaviours in an online world. The philosophical underpinning of the study, together with an explanation of its methodology – 'the logic by which' (Mason, 2002, p. 30) the study's attempt to answer these research questions is framed – is discussed in the Research Design chapter (starting on page 105).

F. Relevance of research to policy and practice

As has been shown, social networking is changing the way organisations - including educational ones - go about their work. Despite the size and speed of the changes wrought by online social networks like Twitter even as of early 2016 Alderton's (2011, online) assertion still holds true: 'very little research has been conducted about individual educators' use of Twitter'.

Experts in the field describe the 'vast and uncharted waters' of research into social network sites (Rutherford, 2010, p. 61) and point to a lack of understanding amongst scholars as to who is using these sites and why they are using them (Boyd and Ellison, 2007). Social networking platforms like Twitter are often referred to as 'disruptive' innovations, transforming the way humans interact in ways every bit as significant as the changes wrought centuries ago by Gutenberg's printing press (Fisher, 2013).

⁶ Gronn's model has yet to be discussed in the text at this point. The model itself and the reason for choosing it over the various other models available is explained in full in what follows.

This study, therefore, is designed to make a significant, new and original contribution to the existing body of knowledge about the use of Twitter amongst senior leaders in schools. The outcomes of the study are intended to further inform the research agenda, as well as contribute to the literature on leadership and social networking. As such, the findings will be summarised and presented to the editors of Conference and Common Room (the journal of the HMC⁷), so that as wide an audience as possible gains exposure to the research and its implications. It is hoped that in so doing, the research will have a material impact on a range of schools - both independent and maintained - whilst also advancing the HMC's stated aims to:

- help members and their schools to grow and develop
- encourage and share innovation in HMC schools and more widely
- promote discussions of national and international issues
- influence policy and public opinion with regard to the independent sector (HMC, 2013)

But the readership of the HMC's professional journal is relatively small, whilst the implications of this research will, it is hoped, be of relevance to leaders in all types of school and in different jurisdictions. As such it would be a great shame to restrict the findings to the small coterie of schools afforded membership to the HMC. Further traction for the ideas contained in this thesis will be sought by:

- posting the thesis, together with the experience of writing it, online
- reprising the talk⁸ I delivered at the Oswestry School #TeachMeet in 2015 at other similar gatherings of teachers

⁷ The HMC, or Headmasters' and Headmistresses' Conference, is a professional association heads of some of the world's leading independent schools. It can be found online here: <http://www.hmc.org.uk/>

Just before the final submission of this thesis the author's article was published. It can be seen here: <https://goo.gl/tCD1Ev>

⁸ A summary of what was said in this talk is found here: <http://goo.gl/FVI1vZ>

- exploring the possibility of editing a crowd-sourced book of social media advice for senior leaders in schools
- summarising the findings of the research on the British Educational Research Association (BERA) website⁹ so that other researchers in the field get the opportunity to see the research and comment on the findings in an open forum

As will be explained, 21 senior leaders took part in this study. As a courtesy, and as a mark of gratitude for their time and honesty, I will feed back to each directly with the thesis itself, and with an executive summary of the findings.

G. Structure of the study

The thesis is organised into 6 chapters, each themselves subdivided to aid navigation around the document and to provide structure to the arguments being put forward. The chapters are as follows:

- Chapter 1 - Introduction
- Chapter 2 - Literature Review
- Chapter 3 - Research Design
- Chapter 4 - Presentation of Findings
- Chapter 5 - Discussion of Findings
- Chapter 6 - Conclusion

In the next chapter – the Literature Review – the writings of other authors working in the field of social media are discussed. The study is therefore placed in its proper context within the body of existing literature. Discussion also follows of the literature relating to the professional development of school leaders, as it does to their career journeys.

⁹ BERA runs a blog which is open to all researchers to make submissions. The guidelines for the submission of articles are outlined here: <https://goo.gl/M68wRt>

H. Executive summary

H.1. Salient points

- Social media platforms have exploded in popularity in recent years.
- This study focusses on Twitter as a tool for the professional development of school leaders.
- Twitter's open, publicly accessible, nature makes it ripe for research.
- Four research questions frame the study.

H.2. Implications

- Little research has been done in this particular field before – there is scope for making an original contribution to the corpus of knowledge.

A. Introduction

In this chapter the various strands of research already published that relate to the use of social media tools amongst school leaders are reviewed in detail. An attempt is made to articulate, clearly and succinctly, what researchers have already written about the interface between social media and the professional development of school leaders.

The research is placed in its proper context by a discussion of the literature - much of it predating online social networking - that relates to leaders' professional development as it unfolds during the course of their careers. In this sense, the chapter aims to provide a comprehensive overview of the other authors' work on the themes framed by the research questions (see page 15). By maintaining a sharp focus on the research questions the scope of the literature review is kept deliberately narrow such that only material of heuristic value is discussed.

In summary, in keeping with Creswell's (1994) advice on the content of literature reviews in the social sciences, the aims of this chapter are to:

1. articulate the results of other studies that are closely related to this one
2. relate this study to the larger, ongoing dialogue in the literature about the issues thrown up by the research questions
3. provide a framework for establishing the importance of the study

A.1. Structure of the literature review chapter

Twitter and professional development (as defined in section 1.C on page 12) clearly feature heavily in this chapter but they are discussed, as will be explained, using the framework of leaders' career progression over time – their career arcs. The chapter is therefore structured as follows:

1. A detailed history of Twitter is provided, along with a full explanation of the terminology associated with it.

2. The literature on the career arcs of senior school leaders in a pre-Web 2.0 world is reviewed.
3. The literature on the career arcs of senior leaders in a post Web 2.0 world is reviewed.
4. The literature - both positive and negative - on impact of social-media on the lives of leaders is then presented.
5. A review of the existing literature on the mechanics of social media research is presented.

Finally, the chapter is drawn to a close by weaving these strands together and presenting a nascent theoretical framework.

A.2. Literature review search strategies

Since Twitter has only been extant since 2006, an exhaustive search of all the articles containing reference to the terms in Table 3 was made using Google Scholar with 2006 set as the start date for the searches. By using the OR operator in selected searches the literature returned was not confined to that making reference to social media at the exclusion of Twitter (or vice-versa), but included both. As can be seen in Table 3, certain searches were not bounded by a 2006 start date to allow material to be surfaced from earlier periods. This facilitated placing professional development in its proper historical context.

There may be some apprehension here over the use of Google Scholar as against the use of other search databases – particularly those overseen by university libraries. As it turns out, though, there is no empirical reason for this concern. Quite apart from the speed and familiarity that Google Scholar searches afford end users, the search engine has been found to be at least as scholarly and comprehensive, if not more so, than alternative methods of search. For example, even when the search engine was still in its beta (unfinished) state one study found that:

Google Scholar is, on average, 17.6 percent more scholarly than materials found only in library databases and that there is no statistically significant difference between the scholarliness of materials found in Google Scholar across disciplines (Howland et al, 2008, p. 227).

Thus there is legitimacy within the academy – and from across the disciplines, no less – for the use of Google Scholar as a research tool.

In light of this, the following search terms were used in Google Scholar to capture all the articles and books published between the founding of Twitter and the beginning of the final write-up in late September 2015.

Search term	No. of books and articles returned
“Twitter” AND “professional development”	52,600
“Twitter” OR “professional development”	57,700,000
“professional development” AND “school”	3,270,000
“professional development” AND “lead*”	3480,000
“Twitter” AND “school”	1,340,000
“Twitter” AND “lead*”	266,000
“Twitter” AND “principal”	642,000
“Twitter” AND “deputy”	58,200
“Twitter” AND “head*”	237,000

Table 3, Search terms and search returns used as the basis for the literature review.¹⁰

Given the volume of published material these searches returned the Google Scholar algorithm purporting to ‘sort by relevance’ was employed. According to Google itself, such rankings aim to:

¹⁰ The searches shaded in blue were not filtered using a start date of 2006 to generate a broader search incorporating literature that pre-dated the advent of social media.

...rank documents the way researchers do, weighing the full text of each document, where it was published, who it was written by, as well as how often and how recently it has been cited in other scholarly literature (Google, 2015, online).

In each case the first 50 articles were skimmed for relevance and used where they were deemed of sufficient import.

Electronic library catalogue searches were also carried out for all the terms listed in Table 3 to uncover relevant materials in the holdings of the libraries at the University of Birmingham. These searches were carried out by placing the search terms that appear in Table 3 into the search box found under the my.library tab on the university's intranet pages and by specifying that the search should be conducted for 'everything'. In this way physical items, as well as digital ones, were returned by the algorithms behind the university's search engine. Books and articles suggested in this way were also used where they were deemed to be of relevance.

Additionally Twitter itself provided a rich seam of information, and searches were carried out for all the terms listed in Table 3. In order to do this a column in TweetDeck¹¹ was dedicated to each the search terms and checked regularly during the course of the research. Interesting and informative tweets were added to a list which was regularly checked in TweetDeck. Any researcher seeking to replicate this strategy will clearly surface different material, dependent as it is on time and the vagaries of the Twitter API,¹² but the method used is recorded here for completeness.

Thus this chapter draws on a wide selection of relevant material about the use of social media - and Twitter in particular - in a range of contexts. It also presents a detailed

¹¹ TweetDeck is a third party app that allows users to sort Tweets in columns according to user-specified criteria (see next section starting on page 47 for definitions of these terms).

¹² API stands for application programming interface. The API is the means by which the authors of third party software – like TweetDeck or TwDocs – get access to Twitter's outputs.

exploration of the literature surrounding school leaders' professional development and their career trajectories.

In the next section Twitter is introduced, along with the terminology that comes with it, this sets the scene for later elements of the thesis. The discussion of Twitter is followed by a review of the literature as it relates to pre-Web 2.0 models of career progression, and then as it relates to post-Web 2.0 models. The chapter then proceeds to look at the positives and negatives of social media use amongst leaders. Finally, the chapter draws to a close with a summary of the emergent themes and discussion of an emerging theoretical framework.

B. An introduction to Twitter

B.1. Definition of terms

Social network sites are defined by Boyd and Ellison (2007, p. 211) as internet services that allow individuals to:

Construct a public or semi-public profile within a bounded system; articulate a list of other users with whom they share a connection [and] view and traverse their list of connections and those made by others within the system.

Boyd and Ellison acknowledge that the nomenclature used by the various providers for each of these facets of social networking varies. Twitter, for example, which forms the particular focus of this study, uses the following terms (indicated in bold) for each of Boyd and Ellison's criteria:

- a. a user's **profile page** (with associated *avatar* usually, but not always, a picture of the user's face)
- b. a list of **followers** (people the user has a connection with)
- c. **Tweets, retweets (RTs)** and **direct messages (DMs)** and **hashtags (#)** (ways of making connections and/or traversing their list of connections)

Thus Twitter has all the attributes that Boyd and Ellison regard as constituting a social network.

The terms used in the title of this thesis have already been defined (see page 12) but Twitter, in common with most other social networks, has associated with it numerous other specialist terms. These terms are referred to extensively in what follows, and so, for the sake of clarity, they are defined in Table 4:

Term	Explanation
Edchat (or #Edchat)	An Edchat is a Twitter-driven discussion using a hashtag (cf). Educators typically gather together online at a set time to discuss a range of agreed topics.
Twitter handle	This is a user's username, and always starts with an @ sign e.g. @tjteacher.
Tweacher	A moniker sometimes used for teachers on Twitter.
Twitterati	A term widely in use to describe those on Twitter with large followings who are seen as thought leaders in their particular field of expertise.
Tweep	A person who is on Twitter – who may or may not be a teacher or leader.
Tweet	Anything written or published on Twitter up to a maximum of 140 characters. Tweets can also include links to other parts of the internet and pictures or videos.
Follow	A person wishing to receive Tweets from another Twitter user needs to follow them. Anyone can follow anyone else, without having to ask for permission.
Follower	A follower is someone who has elected to receive your Tweets direct to their Twitter stream (qv).
Follow back	The unwritten convention on Twitter is that someone who is followed by a particular user follows them back so that each receive each other's Tweets.
@reply	This occurs when you want to mention a specific user on Twitter using their @username Twitter handle. Mentioning a user in your Tweet in this way alerts them in their Twitter account under mentions <i>even if you do not follow that person</i> .
Direct message (DM)	A direct message is similar to an e-mail, When you direct message someone only they can see your message. This is the only type of communication on Twitter that is private. It is not possible to direct message someone who is not following you.
Hashtag (#)	If you are Tweeting about a particular topic of event and you want to allow other Twitter users to find all the Tweets about that topic in one place you need to use a hashtag. Using a hashtag before a word or phrase makes it into a hyperlink that can then be clicked on to reveal all the other Tweets on Twitter containing the same word or phrase.
Modified Tweet (MT)	The prefix MT stands for 'modified Tweet' and signifies that a user has reposted something belonging to another user on Twitter with subtle modifications.
Twitter stream	Everything you Tweet on Twitter, together with all the Tweets of the people you follow appears on your Twitter stream. This is similar to an e-mail inbox in that it lists all the communications that are going on between you and your followers.
ReTweet (RT)	Users who find another user's Tweet particularly interesting can reTweet it. This has a similar effect to forwarding on an e-mail. A user who reTweets and Tweet sends the communication on to all their followers.
Twitter lists	As users begin to follow more and more people their Twitter stream (qv) can become crowded. By creating a list a user can restrict the Tweets seen to only those from certain people. For example it is possible to set up a friends and family list, which would show only Tweets people who fell into this category. This allows users to get rid of the 'noise' on Twitter and home in on what interested them.
TweetDeck	This is a proprietary interface for Twitter that allows users to view searches, user timelines and lists side by side in columns on the screen. It facilitates scanning Tweet streams and managing information flow for accounts where otherwise the signal to noise ratio is low.

Table 4, Key terms associated with Twitter use (adapted from Twitter's online help page found at <https://goo.gl/dbkqs>).

B.2. How Twitter works

For many tweeps Twitter is the first place they go to for news, for information and for real-time interaction with colleagues and acquaintances. Part of the attraction of Twitter is that such networks and connections take no account of international borders; tweeps are able to freely converse with like-minded people from around the world. Conversations take place around the clock with activity spiking at key times in the various time zones. With everyone able to say whatever they want, whenever they want (albeit limited to just 140 characters) new tweeps can start to feel overwhelmed by the volume of information that appears in their stream.

As has been discussed, hashtag chats have developed over time to allow users to focus in on just the topic or event that interests them. Many tweeps find these chats a good way to get involved in real-time discussions with other educators on Twitter. Table 5 gives an illustration of the sorts of education chats that are occurring on Twitter in the UK, though of course there are many other similar chats taking place in other jurisdictions.

	Hashtag	Time	Content/description
Whole school issues	#ukedchat	Thursday 8pm	The most popular education chat for UK teachers
	#edchat	Tuesday 5pm	Go global by joining in the chat with teachers around the world
	#sltchat	Sunday 8pm	Senior leaders chat about the big issues in education
	#pedagoofriday	Friday all day	Teachers discuss their best moment of the week
Specialisms	#literacychat	Monday 8pm	Alternating with #engchatuk every other week
	#englessonchat	Every other Sunday 8pm	English teachers
	#mathscpdchat	Tuesday 7pm	Maths teachers
	#asechat	Monday 8pm	Science teachers
	#pechat	Monday 7pm	Physical Education teachers
	#dtchat	Wednesday 8pm	Technology teachers
	#Sendchat	Tuesday 8pm	Chat about all things special needs
#ukgovchat	Sunday 8.45pm	School governors and governing body issues	

Table 5, UK educational hashtag chats (Tait, 2014).

In order to manage the torrent of information that fills any given user's stream Twitter also has a built in search functionality. This means that Tweets by a particular user, or about a particular topic can be called up. Twitter also algorithmically suggests to users material that might be of interest to them under the #Discover tab – a view that allows the user to see and search for Tweets that meet user-specified criteria.

In the language of social networking, this is one way for users to increase their 'signal to noise ratio'. Here users are also given further suggestions on who to follow and can view what activity has taken place amongst those in their circle of interest.

B.3. Historical background to Twitter

Web-based social networking of the sort described in Chapter 1 clearly had to wait for the widespread introduction of the internet for its birth. Although an early form of the internet, used for relating messages between a coterie of US universities, had been in place since 1969 it was not used for social networking as we now understand it (infoplease.com, 2013, online). Similarly, 7 years later, in 1976, when Her Majesty the Queen was invited to send her first e-mail, the internet was still only being used for isolated one-off conversations; much as the telephone always had been. Tim Berners-Lee's eureka moment in 1989, in which he devised a way of making connections between documents and web-pages using hyperlinks, paved the way for social networking to get off the ground. But it would be another 8 years before the first 'recognisable social network' launched in 1997 (Boyd and Ellison, 2007, p. 214).

This first incarnation of a social network, incorporating all the features required by Boyd and Ellison (see page 25) necessary to be defined as such, was called SixDegrees.com. SixDegrees.com failed, however, to devise a sustainable business model and folded just 3 years after its formation. There followed a brief period where a slew of other sites including, notably, Friendster.com tried to gain a foothold in the market place. Indeed, such was the interest in social networking at the time that one commentator was prompted to adopt the acronym YASNS (yet another social networking service) for the multitude of start-up companies emerging with the support of the San Franciscan business and technology community.

Figure 5 illustrates diagrammatically the launch dates of the various social network sites, including the very earliest incarnations of the genre, as well as many of those extant today. Twitter stands out as being a relatively recent entrant to the social media landscape. The scale and speed of its success has been attributed in part to the fact that, in 2006, it was appropriated by a critical mass of influential users at a major technology conference in Austin, Texas (Douglas, 2007; Terdiman, 2007). Also, unlike many other micro-blogging platforms, it allows users to engage both with large and small social circles simultaneously (Efron, 2011).

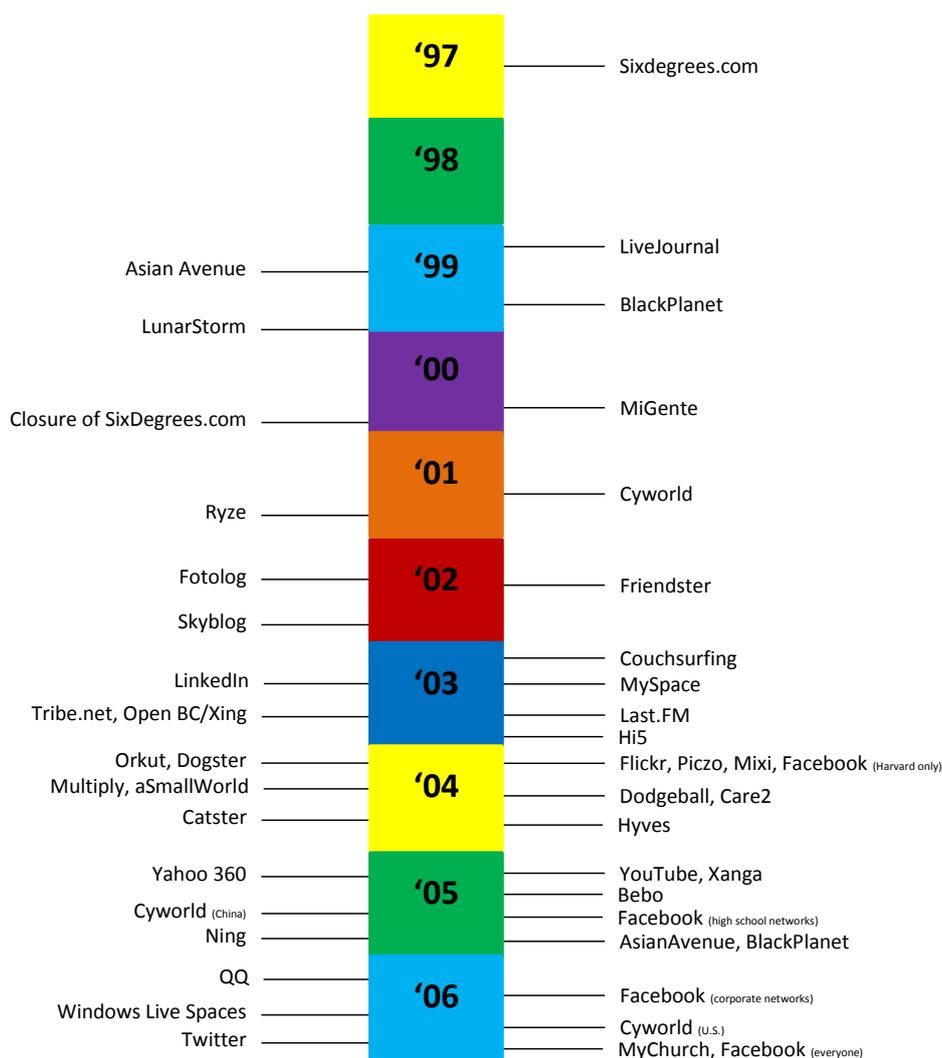


Figure 5, The various launch dates of the major social network sites up to the point where Twitter was created in 2006 (adapted from Boyd and Ellison, 2007, p. 212).

Despite the enthusiasm they generated amongst technophile early adopters, none of these early start ups achieved enduring success or global reach (with the possible exception of MySpace, launched in 2003). For a social network with truly global reach the internet community had to wait for the nascent Facebook to blossom into maturity. Facebook, launched in 2004, was initially set up with a view to facilitating communication between university students. Today Facebook has well over 1 billion users (Kiss, 2014) and is by far the world's largest and most successful social network site.

However, whilst Facebook is popular, it is best used for 'interacting on a more personal level with your contacts' (Lepi, 2013, online). Privacy settings also mean that for research into the use of social media by individuals it is of only limited value. Twitter on the other hand, formed in 2006, as a text based 'micro blogging' service, has no such privacy restrictions. By default all posts (Tweets) are visible to all. The 140 character limit to Tweets has its origins in the fact that the service was originally designed as an SMS¹³ mobile 'phone based platform. This is significant in that it illustrates the extent to which Twitter was ahead of its time in envisioning the importance of mobile 'phones (and now tablets and 'phablets') as a means of interacting with the internet. It also illustrates the potential value of Tweets, which can be sent by *anyone from anywhere* and therefore, particularly for heavy Twitter users, reveal a huge amount of information to the world at large. For these reasons, Twitter has proved a particularly attractive research instrument for individuals from a wide variety of disciplines, even though it has yet to gain significant traction in the field of educational research (Kulavuz-Onal, 2013).

Another notable attribute of Twitter is the democratic way in which it has grown and developed. MacArthur (2013) points out that when it started up in 2006, the service was fairly limited in terms of the features it offered users. However, Twitter engineers responded quickly to requests from users for new services to be added. From its inception Twitter users created their own jargon and different ways to use the service. Initially users

¹³ SMS is an acronym for 'short message service'.

had no way of replying (or gaining the attention of) another specific user on the service. A convention was adopted that other users would be referred to by their username prefixed with the @ symbol to gain the attention of a specific individual. This practice became so widespread that Twitter engineers added the functionality natively to the platform (see Figure 16 on page 58 for an example of the syntax of a typical Tweet).

So it was with hashtags to draw attention to a particular topic and retweets (RTs) to draw attention to the fact that a particular post is being re-posted by another user. An additional convention many tweeps use is prefixing their Tweets with the letter MT (see Table 4 on page 26) to signify that they are posting a 'modified Tweet' – a piece of content from another user that they have doctored or altered in some way. Twitter etiquette dictates that these conventions ought to be adhered to, though the service does not enforce them.

What has been significant and unique about the growth and evolution of Twitter is that in each case *users drove the changes* (MacArthur, 2013). Twitter engineers simply responded to the changes that were happening before their eyes; they adapted the service to cater for the ways in which users were interacting with it and an etiquette grew up around its use. Twitter is therefore an inherently organic and democratic platform, reflecting the needs of its users and allowing them considerable say in its evolution. Such an approach has fuelled its popularity and allowed for the development of a plethora of Twitter communities and discussion groups (see Table 5 on page 27 for examples relating to the UK educational community and the aforementioned work of Bruns and Burgess (2011) on the use of hashtags in the wider Twitter population).

With Twitter placed in its proper historical context it is instructive to relate its development to the Gartner Hype Cycle. Gartner, an American management consultancy firm, have devised a useful way of envisaging the progress of new technologies over time. According to the Gartner Model new technologies, such as social networking, pass through a series of stages before reaching maturity.

Back in 2008, microblogging – the technology that underpins Twitter – was deemed to be two to five years away from mainstream adoption (see Figure 6):

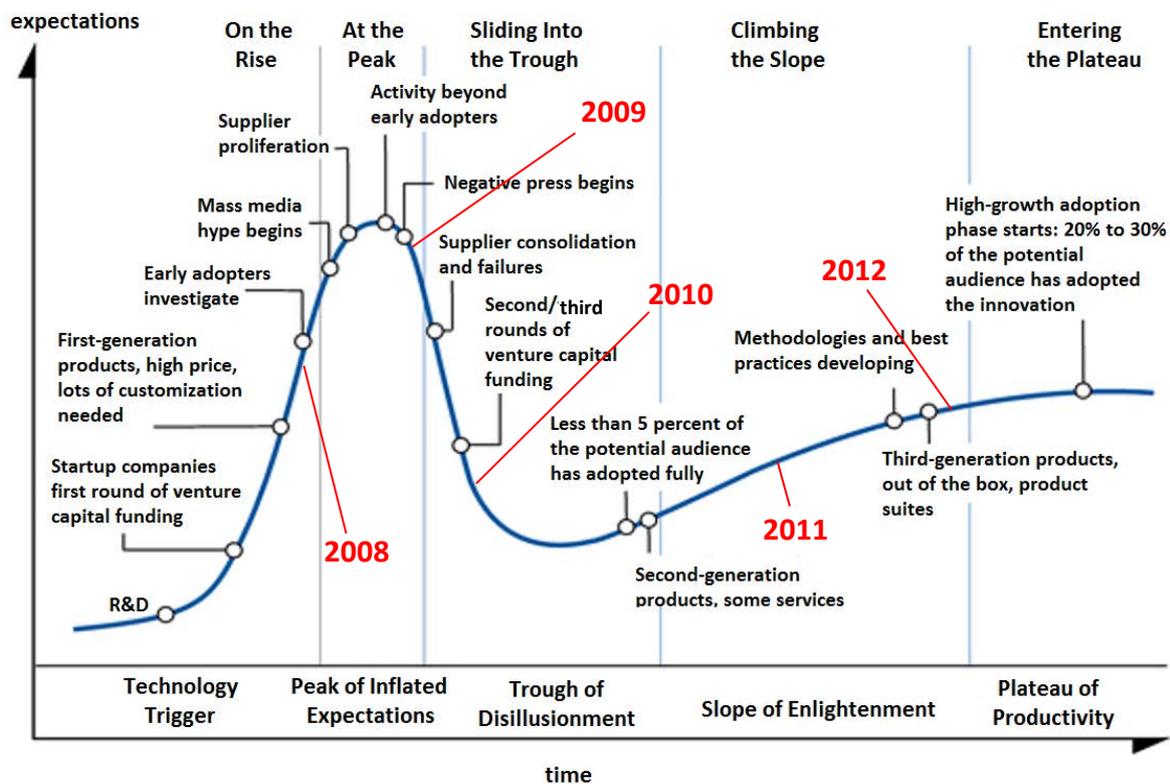


Figure 6, The Gartner hype cycle (Tarkovskiy, 2013). Copyright information: ‘Hype Cycle General’ by Olga Tarkovskiy retrieved from <https://goo.gl/AnxKbw> is used under CC BY-SA 3.0.

Indeed, by looking back through the Gartner models over the years it is possible to chart the course of microblogging as it has moved through the various stages on its way to maturity. It is interesting to note that, according to the Gartner model at least, Twitter has now entered the ‘plateau of productivity’. Marked on Figure 6, in red, are the positions and dates at which the Gartner consultancy adjudged microblogging to have moved through the various stages of the hype cycle model.

C. Pre-Web 2.0 models mapping the career arcs of senior leaders in schools

This chapter now turns towards an exploration of the literature surrounding the trajectory of school leaders' careers. In keeping with the particular focus of this thesis, specific reference is made to the role of professional development as it sits within the context of leaders' career journeys. Following this, reference is made, in section D, to the ways in which social media is impacting on the career progression of today's school leaders and on their professional development.

C.1. The passage to senior leadership – career progress

The models discussed in what follows, influential though they are, were all constructed in a world in which Web 2.0 technologies had yet to come into fruition. Therefore there is clear potential for research to be carried out into the effect of Web 2.0 technologies, like Twitter, on the career arcs of senior leaders. By addressing the research questions laid out on page 15 this is exactly what this study sets out to do. Here a selection of models attempting to describe the various stages in the careers of senior leaders are reviewed in detail.

The majority of models seeking to provide a framework for the study of leaders' careers adopt a longitudinal typology for the simple reason that:

[School leaders'] professional development can only be understood properly if it is conceived of as the result of a life-long process of learning and development (Kelchtermans, 1993, p. 443).

Within the constraints of this longitudinal typology career models broadly fall into three categories¹⁴, the third formed by the overlap between the other two (see Figure 7):

¹⁴ Categorising models of leaders' career journeys in this tripartite way was introduced to me by Dr Desmond Rutherford in a presentation on Leadership for School Improvement at the University of Birmingham. It occurred to me that the categorisation would be neatly illustrated with the use of a Venn diagram (see Figure 7 on page 27).

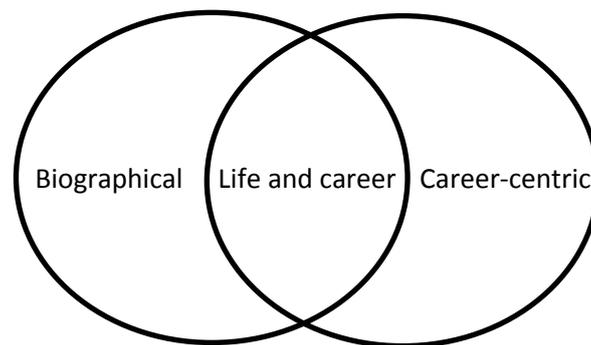


Figure 7, The delineation of career models into their three main types.

Biographical accounts tend to emphasise the influence of childhood and on-going external influences on the career journeys of leaders. By contrast, career-centric models focus more closely on the machinations of the workplace. Finally, life and career models attempt to meld the key elements of the former two together.

C.1.1. Career-centric models

Career-centric models include those of authors like Earley and Weindling (2007) who identify the following six stages of career progression in school leadership:

- Stage 0** - Preparation prior to leadership
- Stage 1** - Entry and encounter (first months)
- Stage 2** - Taking hold (three to 12 months)
- Stage 3** - Reshaping (second year)
- Stage 4** - Refinement (years 3 to 4)
- Stage 5** - Consolidation (years 5 to 7)
- Stage 6** - Plateau (year 8 and onwards)

Figure 8, The stages of school leadership (Earley and Weindling, 2007, p. 74).

As can be seen, their model focusses determinedly on the career of the leader. More specifically, in their 2007 paper, particular attention is paid to the end of school leaders' careers, where they ask the question 'Do school leaders have a shelf life?' The NFER study

on which their career framework is based (Earley and Weindling, 2004) is comprehensive and long-running. It involved returning to a group of over 200 head teachers again and again over a period of many years to gather data on their professional progression.

Day and Bakioglu (1996) also adopt a career-centric approach in their attempt to map the career trajectories of school leaders. They too make much of the final period of leaders' careers and talk of the disenchantment that can bedevil senior leaders' careers once they have been in post for some time. In Day and Bakioglu's estimation leaders' careers pass through initiation, development, autonomy and thence on into disenchantment.

Career-centric models contribute much to the canon of knowledge about the lives of senior leaders, but for two reasons it was decided not to adopt a career-centric model as a framework on which to base this particular study. In the first instance, done properly, careers studied in this way need to be studied over many years, with researchers returning to their subjects again and again to chart the vicissitudes of a life spent in education. In this small, time-restricted study, such a research design was not a feasible option. Secondly, in focussing so closely on the workplace experience of leaders (albeit with an acknowledgement that external influences do have an effect), there was concern that some of the messy, often undocumented life experiences that affect leadership might be overlooked. The danger of adopting such a rigid focus on the workplace is that what goes on outside it has the potential to be glossed over. In a study that aims to uncover the effects of an online life on leadership - a life that is likely to be conducted as much outside the confines of work as much as within it - such a restriction, real or imagined, would be unhelpful.

C.1.2. Life and career models

The second category of model (see Figure 7) focusses on both the life and career of senior leaders. In this sense these models circumvent the criticism that might be levelled at career-focussed models by incorporating an interest in leaders' lives beyond their workplace. Ribbins (2003) has devised terms to describe the various stages through which leaders pass on their route to the top positions in their organisations. Diagrammatically, his model looks like this:

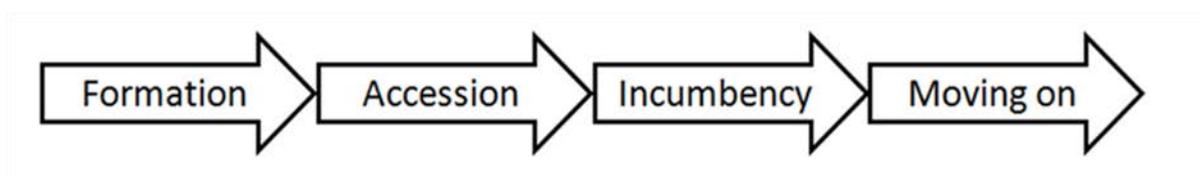


Figure 9, The stages on the route to senior leadership (Ribbins, 2003, p. 63).

Importantly Ribbins' model starts with a period of formation – which may well include childhood influences – before a career is begun. Equally, after describing a given leader's passage through the workplace the model goes on to describe the process of moving on, either to retirement or to another place of work. The model identifies each stage as a recognisable and important milestone on the career path of a school leader, with each stage having its own subtly different attributes.

Indeed, Ribbins' schematic itself draws heavily on the earlier work of Gronn (1993), who had identified identical stages in the career trajectories of a school leaders. Both Ribbins and Gronn are enthusiastic about the value of biographical material to inform the study of leadership. In particular they note that biographies can:

- be inspected for evidence of the development and learning of leadership attributes
- provide 'analytical balance sheets' on the causes to which leaders have directed their energies throughout their careers as they respond to the shifting demands placed on them
- answer broad system and institutional level questions by making comparisons of the career paths of different leaders (Gronn and Ribbins, 1996, p. 464)

Ribbin's model has much to commend it and, in being a reworking of Gronn's model, it might be argued is the more up-to-date and appropriate model to adopt as the framework for this study. However, as we shall see, there were a number of things that meant that Gronn's model, in the end, was the one chosen to provide the underlying framework for this particular piece of research. In particular, Gronn's explicit and eloquent reference to 'socialisation agencies' (Gronn, 1999, p. 34) in later iterations of his model – in a manner that now seems prescient – was decisive.

Before moving on to describe Gronn's model, it is worth pointing out that Ribbins' model has been tweaked by various authors since in ways that add important insights. Rhodes (2008), for example, has made a special focus on the identification of talent and its subsequent nurturing. He sees talent identification as a rather haphazard process not fully captured by the neat, sequential steps that are a feature of Ribbins' model. Rather than formal training, Rhodes argues, leadership know-how has relied on 'the tacit knowledge of educational professionals, such as heads, gained through years of service' (Rhodes et al, 2008, p. 303).

Notwithstanding Rhodes' assertion that much school leadership training is informal, there is plenty of evidence that formal methods have been tried, even if there is disagreement over their effectiveness. Bush and Glover (2004), for example, identify several types of organised leadership development mechanisms whilst acknowledging that there is considerable uncertainty about which methods of leadership development are the most likely to produce effective leadership. The support strategies that have been introduced to guide leaders on their professional journeys include: national training courses, networking, in-school training, and coaching and mentoring (Bush and Glover, 2004, p. 3). In providing this commentary the accession and incumbency phases of Ribbins' model are fleshed out with further detail.

Adding to the debate, in their study into the nature of learning for leadership, Zhang and Brundrett note that:

The findings demonstrate that no course or reading could really prepare for the rigours of professional activity. School leaders' preference for leadership knowledge stems from long-term practice. In all cases the majority of their learning in the workplace is informal, and involves a combination of learning from colleagues and learning from personal experience, often both together (2010, p. 156).

This identification of the informality of learning, and of the importance of serendipitous meetings, is something that biographical leadership studies have tended to be good at surfacing. This is because biographical studies make a virtue out of the study of human interactions in all their messy unpredictability.

C.1.3. Biographical models

Gronn's (1993) model is unashamedly biographical in its approach and is the archetype for this type of leadership study. Gronn's studies into the life and career of Sir James Darling, a mid-20th century educationalist, famed for his headmastership of Geelong Grammar School in Australia did much to inform the structure of his model. As such Gronn's model offers a fuller consideration of the hinterland in which leaders exist than do most other models.

Gronn's schematic makes great play of external influences on the career journeys of school leaders. The prominence given to what he refers 'socialisation agencies' (Gronn, 1999, p. 34) lends his model particular relevance to a study, such as this, into the effects of social media on the lives of leaders. Of particular note, Gronn made a special study into the transition of school leaders between accession and incumbency. He argued forcefully that the route taken by any individual leader is necessarily coloured by the historical, cultural and societal context in which they happen to live (see Figure 10).

In discussing the transition of leaders to headship, Gronn observed that nascent heads:

...have to impress those sitting in judgement by various forms of publicity and impression management that one is ready, willing and able to lead' (1999, p. 36).

This insight, it seems to me, has added poignancy in an increasingly online world in which the tools of publicity and impression management are so sophisticated and widely available. Leaders, Gronn argues, must manage their public selves in such a way that conforms to the societal conventions that they find imposed upon them. So it is no surprise that McLay (2008, p.356) - in a rare longitudinal study focussing exclusively on independent school leaders - identifies similarities between leaders according to their 'generation and class'. School leaders, it seems, are often of a certain type, or at least pretend to be, as a result of the restrictions and expectations placed on them by society.

As Gronn's schematic (Figure 10) makes clear, school leaders' career pathways cannot be properly understood without clear reference to the historical, social and cultural background in which they have emerged. Crucially, such influences are often beyond the conscious control of the individual. This emphasis on the outside world as an influence on leaders' careers makes Gronn's model particularly attractive as a framework for studying the effect of social media on leaders' careers.

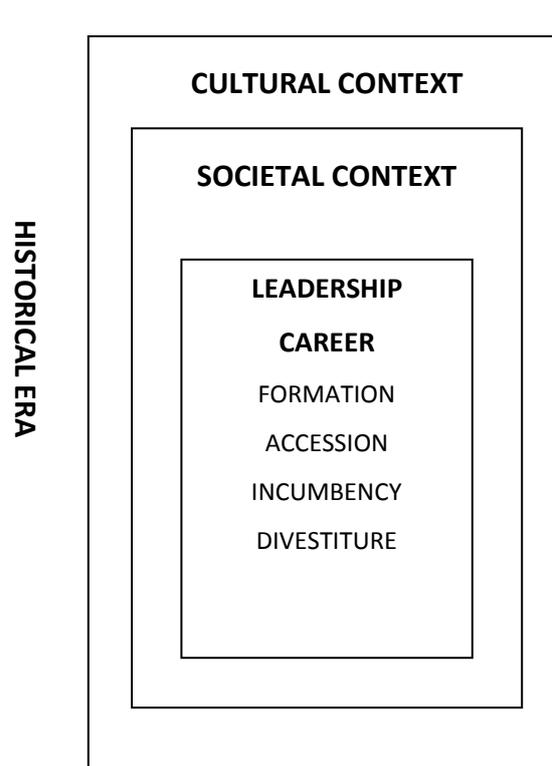


Figure 10, Leadership careers in their proper context (Gronn, 1999, p.33).

Writing just before the turn of the century, at a point when Web 2.0 technologies were still inchoate, Gronn was at pains to point out how the 'formative years of educational leaders and would-be educational leaders are moulded and shaped by key agencies' (1999, p. 21). Today, in an era when communication between educators is so easy, and when ideas and influences can spread so fast, occasionally even becoming memes, it may well be that the 'socialisation agencies' and 'reference groups' referred to by Gronn as having a role to play

in leaders' formation have even more influence than was first ascribed to them (see Figure 12).

In Gronn's conception of leaders' career progression, first-hand experience, and the informal learning that takes place in the workplace, are seen as trumping all. And so it is that a number of factors conspire, many of the beyond the control of aspirant leaders themselves, to govern the speed and fluidity with which leaders make their passage into their roles. Gronn identifies several of these, as in Figure 11:

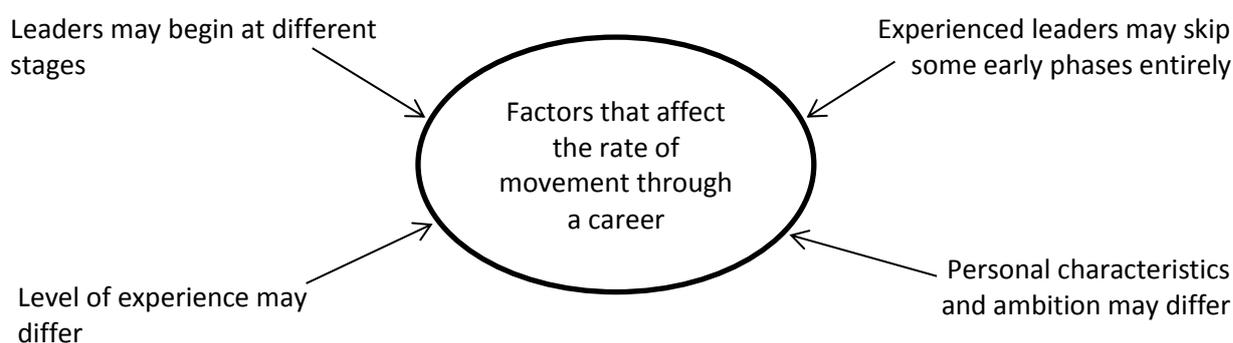


Figure 11, Factors affecting the rate at which leaders progress through the various stages of their careers (after Gronn cited in Ribbins and Gunter, 2003).

Just as training and the passage to senior leadership can be erratic and haphazard, so Gronn identifies signs that the traditional route to senior leadership might be subject to the winds of change. School leaders normally attain their position through a series of sequential steps within or between organisations along which they progress to ever higher office - a phenomenon known as 'status passage'.

But Gronn recognises that greater connectivity between organisations, together with the democratising power of globalisation, could be breaking down this traditional route to career success. He identifies educators who are increasingly working *across* rather than *within* schools such that educators' careers are becoming 'boundary less' and 'protean' (Arthur and Rousseau, 1996 and Hall, 1996 cited in Gronn, 1999, p. 30). This is only likely to have become more true since 1999 but, as Gronn is at pains to point out, the trend does not invalidate his biographical, life-course approach to understanding leaders' lives:

It matters not whether leaders' careers are pursued wholly or only partially within formal organisational boundaries, or even across them; potential leaders will continue to pass through a period of intense preparatory learning, or formation as I term it, and they will still take the bearings for their leadership in relation to, and build their follower constituencies from, the membership of organisations of one sort or another. In short, leaders can be expected to continue to define roles for themselves, for which followers will be required, a long way into the foreseeable future (1999, p. 31).

Gronn's use of the word 'followers' here - a full 7 years before Twitter gave the word an additional meaning - is interesting. Although Gronn could not have anticipated the use of the word in its neologistic sense, his reference to followers, as set against leaders, raises an interesting question. Could it be that Twitter has only served to deepen and strengthen the significance of Gronn's model in ways that he could not have foreseen?

Gronn makes great play of leaders' sense of self in describing their passage through the various stages of his model. He describes, for example, how leaders form an opinion of themselves which is derived, at least in part, by the views they think others hold about them – a phenomenon he refers to as 'mirroring' (1999, p.68). According to this conception, leaders place great importance – whether they admit it to themselves or not – on how they appear to others:

Most people, if they are honest with themselves, will admit that, in the privacy of their own minds, they normally take very careful account of what other people think of them, and that they look at themselves constantly in relation to others (Gronn, 1999, p. 68).

Gronn develops his argument to suggest that some of most influential and successful leaders in history were inveterate managers of their own self-image; school administrators being no exception. He refers to the way in which, throughout history, school leaders have attempted to cultivate for themselves, by various means, an aura of authority and calm: qualities that he refers to as 'presence' and 'coolness'. In managing the impression others have of them, the argument continues, leaders have to be careful to avoid over-familiarity

with their followership lest it rob them of their mystique. Nonetheless, Gronn is emphatic about the importance of such deliberate impression management for leaders:

No matter what their particular physical and other endowments, however, organisational leaders have little choice but to attend to their public personas by seeking to foster desirable impressions to their followers and other audiences (1999, p. 78).

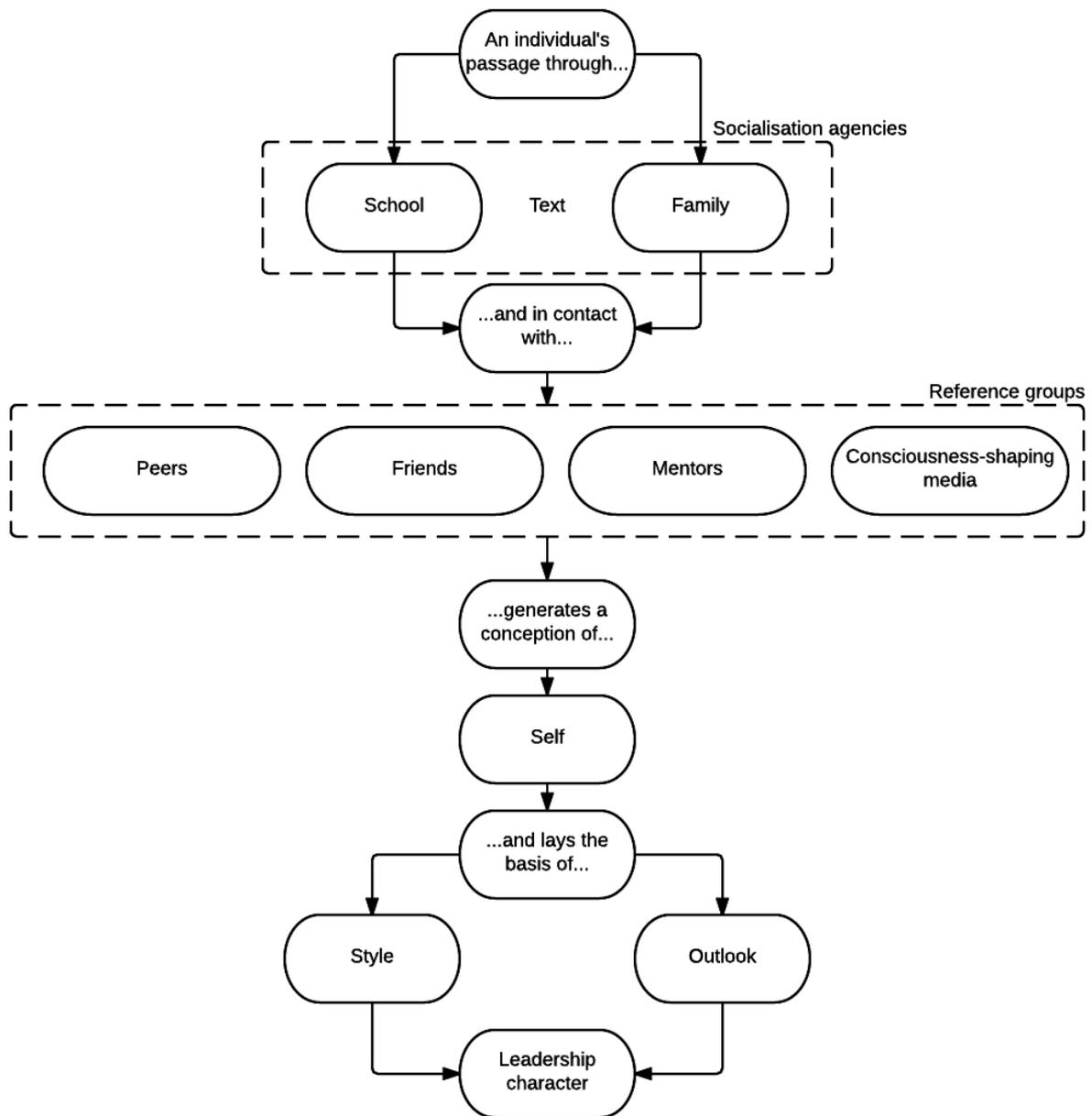
Here too the ground is fertile for further research. With social media providing a platform for an extremely explicit projection of one's ideal self, it may well be that there are implications for the way in which school leaders seek to portray themselves to the world. See Figure 12 on page 44 for an illustration of how Gronn views a leader's sense of self feeding into the very earliest stages of their careers.

In summary, in this study, Gronn's model of leadership progression - particularly the 'accession' and 'incumbency' phases - is the scaffold upon which participants and their professional development are viewed. Other models have been rejected on the basis that they:

- either fail to make such explicit and eloquent reference to external influences – and 'socialisation agencies' in particular that might be employed in the service of describing the effects of social media on the lives of leaders
- and/or entail a form of evidence gathering over an extended period of time that is not suited to the time-bound nature of this thesis

An attempt is made to establish the extent to which Twitter has affected the professional trajectory of senior leaders and introduced a new dynamic to Gronn's career-based model of leadership progression.

Figure 12, The process of leadership formation (Gronn, 1999, p. 35).



C.2. Leadership and professional development

There is a considerable body of literature that deals with traditional approaches to professional development amongst school leaders. Indeed, across the spectrum of rich world countries, change and improvement is frequent. Policy makers feel ‘compelled to develop and modify their national training strategies’ to equip head teachers and other school leaders with the knowledge and skills that they need to perform their roles to the best of their ability (Bolam, 2003, p. 74). Bolam continues to outline what he sees as the main characteristics of leadership development:

Leadership development is:

- an ongoing process of education, training, learning and support activities
- taking place in either external or work-based settings
- proactively engaged in by qualified, professional teachers, head teachers and other school leaders
- aimed primarily at promoting the learning and development of professionally appropriate knowledge, skills and values
- to help school leaders to decide on and implement valued changes in their leadership and management behaviour
- so that they can promote high quality education for their students more effectively
- thus achieving an agreed balance between individual, school and national needs

Figure 13, A working definition of leadership development (Bolam, 2003, p. 75).

But whilst there is considerable interest in the area of professional development for leaders amongst policy makers, some studies have shown that professional development of head teachers and other senior leaders is, at least in some parts of the rich world, inadequate.

Al-Araj (1999) for example, carrying out a study of 164 secondary head teachers and deputies in the UAE, found that deputies were not being adequately prepared for headship and that head teachers were not receiving adequate in-service training. He argues that it is a

similar situation in many other developed countries too, whilst in less developed ones, as might be expected, the situation is even worse. Despite national variations between them, school leaders in almost all countries face what Bolam (2003, p. 77) identifies as three important difficulties:

...the complexity of their roles and tasks; changing external pressures and demands [and] poor access to professional training, development and support, both before and after appointment.

Such difficulties are highlighted in other studies too, serving to underscore the importance of getting professional development for school leaders right. With 'schools everywhere being asked to do more than ever before' and where leaders face a 'complex world and seemingly endless set of pressures' (CERI, 2001, p. 13) inadequate training and access to professional development opportunities are all the more serious.

These difficulties are echoed in the work of Gronn, who describes a smooth career passage as rarely being the norm (1999, p. 28). Part of the problem, it seems, is the inability of traditional methods of professional development to be sufficiently tailored to the needs of the individual, to take into account leaders' particular contexts and backgrounds. As Day and Sachs (2009, p. 3) explain:

Moreover, because teachers, like the students they teach, think and feel, are influenced also by their biographies, social histories and working contexts, peer groups, teaching preferences, identities, phase of development and broader socio-political culture, the purposes, design and processes of continuing professional development will need to mirror these if it is to result in effective outcomes.

Here, in stark relief, the link between Gronn's 'socialisation agencies' and effective professional development is laid out. If professional development has been ineffective in the past, failure to connect with educators in their personal contexts has been a significant part of the problem.

Bolam (2003, 71) is upbeat, though, about the provision of leadership training in England and Wales, two nations which he describes as possessing the ‘most sophisticated school leadership model in the world’. This model, he argues, is characterised by the energetic provision of training for head teachers by various professional associations and by the co-ordination of research into leadership training by several bodies, including:

1. the Universities Council for the Education of Teachers (UCET)
2. the National Foundation of Educational Research (NFER)
3. the British Educational Research Association (BERA)
4. the British Educational Leadership, Management and Administration Society (BELMAS)
5. the General Teaching Council (since March 2012, the Teaching Agency)

Additionally, the National College for Teaching and Leadership (NCTL)¹⁵, an executive agency of the Department for Education, champions preparation, induction and in-service training for all school leaders.

When the NCSL was first established in 2000 much play was made of its physical presence and the expectation that trainee leaders would visit in person. This ambition was emphasised by the cost of the building itself (£28 million) and by its innovative design – clear indications that the authorities anticipated it would become an engine for the improvement of school leadership nationwide. The fevered expectation that heralded its opening was further underscored by the fact that some media outlets gave it the moniker ‘Sandhurst for schools’ (Eason, 1999, online); drawing parallels between it and the famous British military academy in which the Generals of the future receive their initial training. Thus the nation’s hopes for its future school leaders - that they should seek to emulate the success of its fêted military leaders - were underscored.

¹⁵ Confusingly the National College for School Leadership (NCSL) was closed down. Many of its functions were transferred over to the National College for Teaching and Leadership (NCTL). I have used the current acronym unless referring to the organisation in its historical sense.

More recently, studies have shown that school leaders express a preference for informal professional learning as opposed to formal instruction – a situation that appears to mirror the findings of Rhodes (2008) that were discussed on page 38. By way of further illustration of this point, Billett (2008) views professional learning as inextricably linked to the social elements of workplace encounters; whilst Ribbins and Gunter (2002, p. 388) argue that leadership development is best understood ‘through the gathering of professional experiences from within contextualised settings’. In this sense the findings of other authors confirm Gronn’s (1999) emphasis of the importance of leaders’ historical, cultural and social milieu (see Figure 10).

The informality of many senior leaders’ learning is reflected in Eraut’s theory of professional development (1994) where unstructured acquisition of knowledge and expertise plays a significant role. And Brundrett and Zhang, having interviewed 34 school leaders in various different contexts, found that:

An almost ubiquitous response from respondents indicated that leadership learning arose out of a variety of informal routes, such as group work, learning communities and collaborative work across schools (2010, p. 156).

Those at the chalk face, it seems, prefer learning to be informal and to involve co-workers in the shared experience.

It is no surprise, then, that informal coaching and mentoring networks have become one of the cornerstones of the work carried out by the NCTL – networks whose very existence depends as heavily on socialisation in the virtual world as it does on socialisation in the physical one. The importance of these connections has been stressed by experts in the field such as Rhodes (2012, p. 252) who notes that there is ‘an established role for coaching and mentoring in schools as a means of induction, teacher learning and leadership development’.

So leadership and professional development is a complex field, with multiple overlapping strands, and towards which considerable research activity is still being directed. In an

attempt to codify the various approaches to leadership development and find some order in the complexity Bush and Glover (2004, p. 19) have identified three overarching categories of leadership development:

1. *The scientific (managerial/technicist): results-focused with an emphasis on training to secure adherence to targets set within formal review frameworks and profession wide standards.*
2. *The humanist (empowerment/persuasive): people-focused with an emphasis on strategically planned transformational interaction, non-threatening development activity and continuing reflective (individual and group) review.*
3. *The pragmatic (rational/reactive): project-focused with an emphasis on the immediate needs for individual or group activity and with a tendency to draw on both scientific and humanist techniques according to the contemporary needs of the organisation.*

Though they acknowledge that further research is needed to ascertain the extent to which the emerging epistemology of leadership represented by these categories stands up to closer inspection. They wonder whether what actually happens to leaders in schools fits neatly into these compartments. At the time that they were writing, of course, many social networking tools were still only in their infancy (see Figure 5 on page 30) and it is likely therefore that this epistemology needs refinement. Education has changed considerably since they completed their paper in 2004, as have many of the organisations that support it. One such (British) institution is the NCTL which, as we have seen, was designed to foster leadership development.

In answer to the important question: 'What makes for effective professional development?', Field (2011) argues that there is a degree of consensus about the issue within the academy. In an editorial piece in which he seeks to draw together the collective wisdom of studies into what makes effective professional development he suggest that it must be:

...relevant, ongoing, frequent, reflective, evidence-based, collaborative and personalised (Field, 2011, p. 171).

Additionally, Field stresses the importance of emotional well-being in effective professional development. He notes that low levels of confidence and self-worth in teachers can damage professional development. The extent to which Twitter bolsters self-worth, as well as providing a conduit for the other elements of effective professional development is the central thrust of this thesis. A discussion of the extant literature in this area appears in the next section.

Thus changes wrought on the NCTL, and on professional development in general, by the emerging online world are described in what follows. Whereas when Gronn first devised his model of school leaders' journeys Web 2.0 was in its infancy, now that is emphatically no longer the case. Attention is now turned to how the career arcs of school leaders have changed as the internet has become ever more participatory.

D. Post Web 2.0 career arcs

D.1. Twitter use by leaders in schools

Brief mention was made in Chapter 1 (starting on page 8) of the literature pertaining to the use of Twitter in schools. Here a more exhaustive account of the work of academics in this area is presented. Using the search strategies described on page 20, a raft of literature came to light.

In one seminal study, for example, Carpenter and Krutka (2014) draw on their personal use of Twitter, allied to an extensive trawl of the literature and their own research, to distil Twitter's use in schools into three discrete categories. Twitter, they argue, is used in schools for:

1. communication
2. class activities
3. professional development

The first two of these, interesting though they are, fall outside the scope of this study; the third however is foundational to it. Indeed, Carpenter and Krutka’s study supports this focus on professional development.

In their study of 755 secondary school educators from 24 countries across the world, professional development emerged resoundingly as the single most important reason for educators’ engagement with the platform. In response to the question: ‘For what professional purposes do you use Twitter?’ educators’ answers were categorised as in Table 6:

Professional Purpose	Percent indicating use of Twitter for given purpose
Resource sharing/acquiring	96%
Collaboration with other educators	86%
Networking	79%
Participating in Twitter chats	73%
Back-channeling	30%
Emotional support	25%
Communication with students	23%
Communication with parents	18%
In-class activities for students	17%
Out-of-class activities for students	16%

Table 6, Educators’ self-reported uses of Twitter (Carpenter and Krutka, 2014, p. 423).

It is salutatory that many of Field’s (2011) identified requirements for effective professional development are listed here – perhaps most notably teachers are using Twitter to bolster their sense of self-worth (emotional support), to collaborate (resource sharing) and to reflect (Twitter chats, networking etc.)

Communication, class activities and professional networking are also mentioned in Dixon’s (2012) book exploring the use of social media by school leaders. Here too, the usefulness of Twitter as a professional development tool is highlighted, with Dixon lauding Twitter as ideal for ‘building collaboration’ between school leaders (2012, p. 47).

Dixon (2012, p. 52) suggests that school leaders can further their professional development by:

1. responding to other school leaders on Twitter and using notable leaders to answer your most pressing questions
2. building partnership networks to, for example, brainstorm a challenge you are facing
3. inviting conversation with other users in order, say, to garner support for a project in school

Similarly, several recently completed, but as yet unpublished, doctoral theses have focussed on the theme of Twitter as a professional development tool (Doyle, 2015, Elias, 2012 and Deyamport, 2013, for example). Each identified the importance of Twitter as a professional development tool in the lives of their study participants. Doyle's findings are typical:

...educators value Twitter as a vehicle for professional development. Twitter is appreciated for its self-service and immediate approach to learning. Being connected to other colleagues and experts across the world is seen as a great advantage. The ease in which to access constant, current, and large amounts of resources, ideas, and methodologies helps teachers improve their professional development on a continuous basis (2015, p. 2).

As such these unpublished accounts mirror the findings of Carpenter and Krutka's published study in which they note that Twitter offers professional development opportunities that differ from traditional approaches, because the medium:

...is immediate, is personalised and can draw on networks that are less restricted by time and place (2014, p. 419)

Note that Field (2011) explicitly identified, amongst other things, high quality traditional professional development as being relevant, ongoing and frequent. Thus Twitter is portrayed as a platform which can, at least in part, obviate some of the weaknesses with traditional professional development where meeting such criteria is harder (see section C.2, page 45).

In another study, involving 115 Twitter users and the analysis of over 180,000 Tweets, there was clear evidence that school leaders were using their Twitter accounts 'overwhelmingly

for educational purposes' and that they were 'clearly using Twitter to extend and strengthen their own community of practice' (Sauers & Richardson, 2015, p. 11). School leaders were seen to be deliberately reaching out to specific individuals or target audiences with their Tweets in an effort to create their own professional networks based around educational issues of interest to them.

Twitter is seen, therefore, as a powerful tool by which some school leaders have bolstered their sense of personal efficacy and increased their access to professional development:

Educational leaders often face isolation as a result of their unique role in their community. Most school leaders do not have a colleague down the hall with whom they can easily professionally engage. Sharing of ideas and gathering new ones from other school leaders who share the same general responsibilities often happen at irregular meetings or through traditional mediums such as newsletters, books, or conferences. Although those traditional methods have benefits, they also have their limitations. [] Unfortunately those mediums do not allow for a rich, meaningful, continued dialogue to take place. They simply push information out without the ability to have a conversation or ongoing communication (Sauers and Richardson, 2015, p. 15).

Here again, Twitter has the potential to supplement, or even replace, more traditional forms of professional development. Even though mediated across the internet, it seems Twitter is able to address the emotional well-being issues of educators that Field sees as foundational to effective professional development:

Interaction with colleagues and peers promotes collaboration, and teachers respect the opinion of those with real experience and empathy. Emotional well-being is at the core of effective CPD, but not in the form of constant positive stroking. Challenge and critique is how reflection is encouraged (Field, 2011, p. 172).

Twitter, of course, *does* allow for such ongoing conversations and critiques. Many of the school leaders in the Sauers and Richardson study were very grateful for it. For many Twitter had helped to cement their internal sense of self belief, efficacy and esteem. It had imbued them with exactly the sort of self-assurance that Gronn identified as being the hallmark of leaders in the accession phase of their careers (see Figure 14).

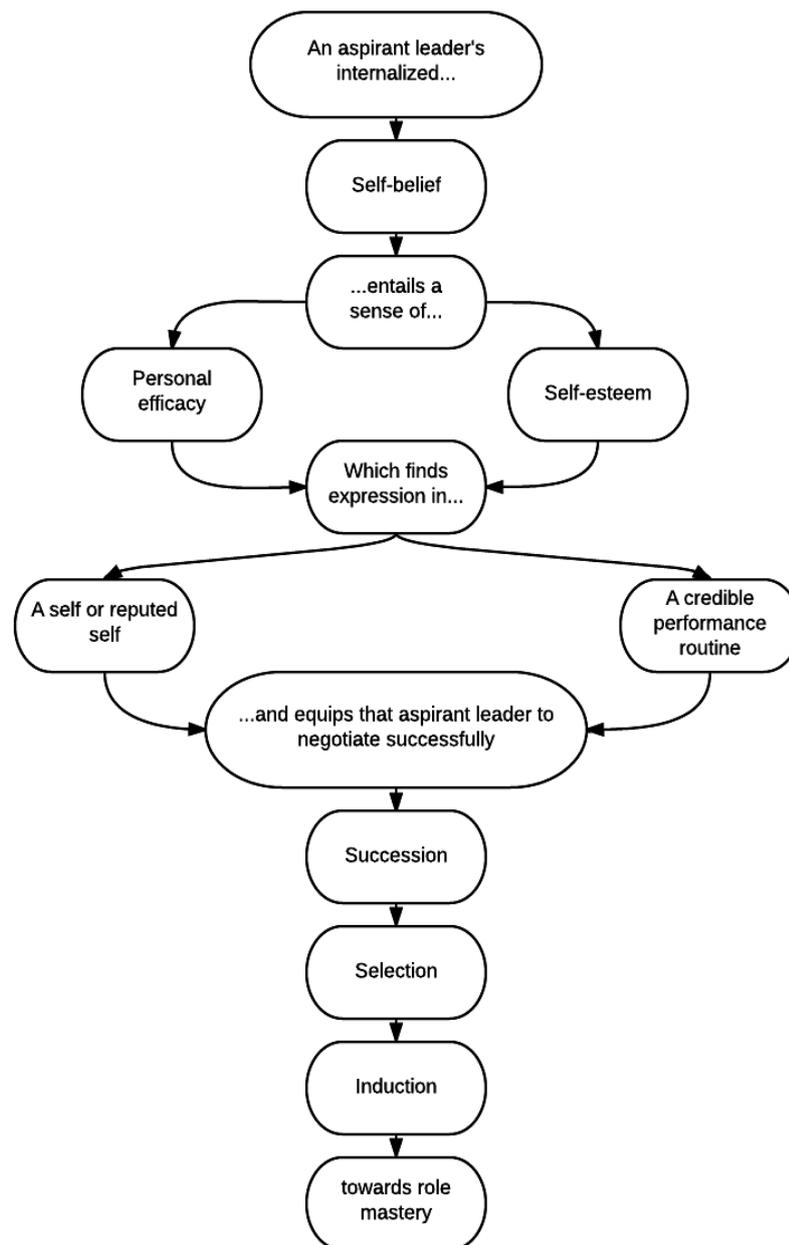


Figure 14, The process of leader accession (Gronn, 1999, p. 37).

D.2. Leadership training using social media

But it is not just individuals who are capitalising on the use of Twitter to facilitate professional development in their institutions. The NCSL, discussed earlier, is a case in point. Here an institution, set up with the express purpose of smoothing the career journeys of aspirant leaders, is enthusiastically embracing Twitter.

Notwithstanding the assumption that having a physical presence for the NCSL would be important – placed symbolically right in the centre of the country in Nottingham as if to highlight its national role – there has always also, right from its inception, been a strong virtual element to the work carried out by the organisation. As Eason explains, writing before Nottingham had been decided upon as the city which would house the college:

Although its geographical location has yet to be decided, the college's purpose-built site might be developed on or near the campus of an existing business school. But there will also be a strong 'virtual' element, allowing people to study through the National Grid for Learning and to liaise with mentors online (1999, online).

In this sense the NCSL was well ahead of its time in its adoption of virtual technologies for disseminating high quality training to school leaders. From the very outset there seems to have been a recognition, emanating from the very highest levels of government, that school leadership can be a lonely business and that the NCSL would play an important role in mitigating the isolation that can bedevil leaders. Indeed, as the then Prime Minister and his Education Secretary explained in their joint foreword to the document announcing its opening, it help educators as they tackled the 'isolating task'¹⁶ of school leadership (Eason, 1999, online).

In an effort to act as a conduit for communication between school leaders and to lessen the extent to which school leadership is the 'isolating task' that Mr Blair and Mr Blunkett

¹⁶ The isolation felt by many school leaders is a recurrent theme in much of the writing pertaining to school leadership. Gronn (1993) mentions it, as does West Burnham (1999) for example.

described, the (now) NCTL has continued to be an early adopter of online technologies. A clear indication of this is the fact that the NCTL's Twitter account has been active since April 2008 – less than two years after Twitter itself was first launched (see Figure 15).



Figure 15, The Twitter page of the NCTL as it looked on December 20th 2014.

The NCTL's Twitter feed is full of links to edifying articles, blog posts and video clips on a wide range of topics of interest to school leaders. And the NCTL offers school leaders unprecedented access to those at the very heart of government – with whom they can converse in a way that would have been inconceivable at the time the college was first set up (see Figure 16). The success of its activities on Twitter is demonstrated by the fact that the NCTL now has over 19,000 followers (see Figure 15).

By way of highlighting the utility of Twitter as a means of disseminating the most current news in school leadership, whilst researching for this chapter I found, via the NCTL's Twitter

feed, a link to plans, released in December 2014, for a new 'independent college of teaching and improved professional development' (DfE, 2014, online). Indeed, the DfE announced a package of measures designed to put continuing professional development for those who work in schools right at the forefront of their work by:

- *supporting the creation of a new, independent, professional body for teaching - a college of teaching - that will give the profession greater responsibility over things like professional standards and development, placing teaching on an equal footing with high-status professions like law and medicine*
- *establishing a new fund to support more high-quality, evidence-based professional development programmes - designed and delivered by a network of more than 600 leading teaching schools, working in partnership with others to spread the findings of their work across the teaching profession (DfE, 2014, online)*

Twitter provided the news quickly and enabled discussion with other educators about the implications of the proposals. As a means of communicating with a group of stakeholders the platform proved highly effective. Added to this, and clearly illustrating the extent to which social media has been embraced by certain elements of the educational community, Twitter will feature heavily as a conduit of information for the new professional body. For followers of the NCTL's stream Twitter fulfils admirably, then, Field's insistence that professional development should be 'relevant' and 'ongoing'.

The establishment of a new College for Teaching and Professional Development suggests that, in England and Wales at least, the importance of high quality training for teachers - at whatever stage in their careers they find themselves - is again right at the forefront of the political agenda. And social media - Twitter in particular - is an important aspect of the way in which the work of organisations like the NCTL is carried out. Never before have decision

makers and practitioners enjoyed such close and regular communication (as illustrated in Figure 16¹⁷).



Figure 16, A typical Tweet from the NCTL.

D.3. Hashtags and the construction of praeter hoc or ad hoc publics

Hashtags (#) are an important way in which content on Twitter can be organised and users can search for material that interests them. The idea is that any word prefixed with a hash symbol becomes searchable by other users. Where sufficient traction is gained by a particular hashed keyword the word has the potential to start 'trending' on Twitter and so coming to the attention of yet more users (see Table 5 for some hashtag examples from the world of education and Table 4 for detail on the terminology). Here a more in depth discussion explores the way in which the use of hashtags may relate to Gronn's conception of the leadership journey.

¹⁷ In displaying Tweets anywhere in this thesis I have rigorously followed Twitter's display requirements as posted here: <https://goo.gl/UNVxk6>.

Social media has placed into the hands of anyone in possession of an internet connection enormous power to organise, publicise and enervate public opinion. It is well documented, for example, that the social unrest that swept across the Middle East from late 2010, throughout 2011, and later referred to as the 'Arab Spring', was inflamed and accelerated by protesters' access to social media platforms (Eaton, 2013).

Twitter, with its short character limit, emphasis on immediacy and sharing the moment is better suited than most social networks to fuel such activism – not least because, having been born out of SMS technology, the entire platform feeds off in-the-moment updates from users with access to a mobile internet connection.

As Bruns and Burgess (2011, p.1) point out, innovations such as the Twitter hashtag greatly facilitate the formation of 'ad hoc publics around specific themes and topics'. They mention, for example, the '#londonriots' hashtag as having served as a conduit for the sharing of information and political ideas around the 2011 riots in the British capital and the '#wikileaks' hashtag performing a similar function for the debates flowing from the scandal that ensued following Julian Assange's release of classified information via the internet.

Since then numerous other spontaneous groups have emerged, some fleetingly, some longer-lived, around which interest groups have clustered (see Table 5 on page 27 for examples of UK-based educational hashtags). Though hashtags were not an element of Twitter's feature set from the outset, once they had been incorporated into the user interface they quickly gained traction and popularity. Bruns and Burgess (2011, p. 3) attribute the success of the hashtag largely to its:

...stripped down simplicity and the absence of any regulation around its use – there is no limit or classification system for Twitter hashtags so all users need do to create or reference one is to type in the pound/hash symbol followed by any string of alphanumeric characters.

Thus hashtags are best used by tweeps to connect with other users Tweeting about the same topic either before (praetor) or after (ad) an event. They present researchers with the

opportunity to trace the roles played by individual tweeps and to study how the community reacts to changing stimuli over time.

Significantly for this study, Twitter hashtags have the potential to work in opposite directions in terms of the development of leaders' knowledge about the world: they can either cement or break down barriers between communities of practice. By including a hashtag in their Tweets users are addressing an imagined community of users who fall outside their normal networks. In this sense the potential of hashtags is exciting for exposing the user to individuals who fall far outside the social, historical and cultural setting envisaged in Gronn's model of leadership progression (see Figure 10 on page 40). Anyone else, anywhere in the world, also following a particular hashtag has the opportunity to converse with users hitherto unknown to them, potentially to present alternatives to the 'prevailing ideologies' (Gronn, 1999, p. 34) that they are exposed to. Field (2011) would be delighted in this respect: hashtag chats meet his requirements that professional development be relevant, frequent and personalised. In having the potential to be transnational they extend beyond the potential of even the most imaginative pre-Web 2.0 professional development programmes.

But several studies have shown that far from breaking down divisions between interest groups, hashtag discussions may exacerbate them. One study, of more than 250,000 Tweets, in the weeks leading up to the 2010 US election, for example, found that:

...the network of political retweets exhibits a highly segregated partisan structure, with extremely limited connectivity between left and right leaning users (Conover et al., 2011 p.89).

Whilst Smith et al (2014) note that, especially where a topic is political, it is common to see two polarised crowds take shape in which users in each camp rarely converse with others outside the group who agree with them.

Through the exploration of the research questions posed in Chapter 1 this study will attempt to uncover whether innovations like the hashtag have served to strengthen or

weaken school leaders' sense of self, their style and their outlook as they have undergone the process of formation identified by Gronn (see Figure 12).

In keeping with the title of the study, a sharp focus is maintained on professional development, career progression and on the importance Twitter has assumed in the lives of the respondents in this study as an additional 'socialisation agency' or 'reference group' (Gronn, 1999, p. 35).

D.4. Extant research on the reliability of Twitter as a source of information

With tweeps shown to surround themselves with their own polarised crowd, obvious questions arise as to the reliability of Twitter as a source of balanced, impartial and trustworthy information.

Surprisingly little focussed academic research has been done in this area in any field, let alone in education, however. In a rare example of the genre, a study carried out in the aftermath of the Fukushima nuclear power plant disaster in Japan (Thompson et al., 2012) attempted to unpick the extent to which Twitter can be regarded as a reliable source of contemporaneous news. The findings were heartening: fully 70% of the harvested tweets in the study were based on what the authors referred to as 'highly credible sources'. Added to this, and of great significance to this study, the authors found an almost complete absence of false rumours emanating from any tweets using the #fukushima hashtag. As they explain:

One might suppose that the absence of false rumours associated with the #fukushima hashtag could be due to [an] organic collaborative filter in action. That is, no hashtagged tweets on the whole only reach nodes within a sender's network and any subsequent networks they are forwarded on to. Therefore they can only be questioned by a limited cluster of individuals, to whom the sender is presumably connected in some way [...] Hashtagged tweets, however, are immediately exposed to a much larger audience [...] inviting a much larger probability of being questioned and dismissed by a large cross section of users from a diverse range of clusters (Thompson et al, 2012, pp. 8-9).

Their argument, it seems, rests on the assumption that the wider the audience for a Tweet the more likely it is to gain traction if truthful or to be discredited if not. Hashtags, as we have seen, offer tweeps the opportunity to expose their Tweets to a far wider audience that might otherwise be possible and so a sort of 'crowd sourcing' of the truth is possible. Though I am reminded of here of this (unattributed) saying:

A thousand flies can't be wrong, said the man tucking into a large cowpat.

Thompson et al. also make interesting observations about the credibility of different sources of information. They make the important point that those in positions of responsibility, whose career success relies on the reliability of their utterances (print journalists, public institutions etc.), are likely to be the most credible sources. For the purposes of Twitter this means it is wise to follow organisations and individuals whose brand rests on being timely and correct. Online reputation is important for this class of tweep.

In this vein, Stranack (2012) describes how he began building his PLN on Twitter by first searching for and following the authors of print books he had read and appreciated. In this way he built a network of professionals around him whose work had already been the subject of scrutiny.

In summary, academic work in this area is inchoate. Nonetheless, there are two emerging themes in thoughtful tweeps' use of Twitter to maximise its reliability and utility:

- users use hashtags to get beyond their immediate networks and see the bigger picture
- users ensure that within those whom they follow there are a good number of sources with strong, established online reputations

E. The effect of social learning on leaders' professional journeys

Several authors - Boerema (2011), Smith (2007) and McCulloch et al (2011), for example, have drawn attention to problems with traditional, one-to-many, models of professional development. As McCulloch et al (2011, p. 8) explain:

It seems that a decade of top-down, cascading initiative led CPD has left many teachers disenchanted with a model of training that to them what they ought to be learning, sent them on a lacklustre day-long course where, with luck, the highlight was a decent lunch, then packed them off back to the classroom to get on with the day job.

With this in mind, an increasing number of teachers and leaders are seeking alternative ways to enhance their professional development – learning socially and online being one such way. A comparatively recent survey entitled Teaching Leaders (NCSL, 2011), for example, revealed that 76% of participants not currently engaged in collaboration with other professionals would like to be. Meanwhile, all of those questioned who were involved in a collaborative project of some sort found it useful. It is significant that Field (2011) identified collaboration as a key component of effective professional development. Learning socially, whether or not mediated through social media – is generally seen by teachers as valuable.

E.1. Background to learning socially

In the UK successive government attempts, since the mid-1980s, to increase the autonomy of maintained schools, and to introduce competition as a new dynamic into the school system, have transformed the educational landscape. Such reforms might be expected to have atomised education systems and have further isolated school leaders, working in different schools, from each other. In fact, as Busher and Hodgkinson (1996, p. 60) have shown, such reforms have 'spawned a flurry of networking amongst many schools'. Their research uncovered a bewildering number of terms used to describe such networks, including 'partnerships', 'clusters', 'federations', 'families' and 'development groups'.

Crucially, though, all were underpinned by a desire to share best practice and to foster professional development, particularly amongst school leaders. And it seems that such networks, however informal, are greatly appreciated by the school leaders. As Busher and Hodgkinson explain:

Several head teachers were grateful for the support they had received from fellow head teachers when they had been first appointed to their posts. Others talked of the value of being able to share concerns about the management of their school with a colleague who would understand the dimensions of their organisational problem. In the X 'family' head teachers met monthly for a working lunch at a local pub (1996, p. 61).

If the importance and ubiquity of such networks is surprising in LEA schools - particularly in the light of the competition that exists between them - it is even more so in the independent sector.

Yet within the independent sector too there is significant evidence that networks not only exist, but are extremely highly valued by their members. As long ago as 1869 the Victorian schoolmaster Edward Thring instituted the first meeting of the Headmasters' Conference¹⁸ – an early example of the sort of networking organisation that leaders in schools value so highly. Other similar groups of independent schools abound: the Warwick Group, the Rugby Group, the GSA, the ISA, the IAPS the ISC, and the Society of Heads, for example.¹⁹

In one study of independent school head teachers, all had attended training courses run by one or other of these organisations (McLay and Brown, 2010). Interestingly, head teachers perceived the greatest value of these courses having come not from the formal content of the meetings, but from the informal gatherings such meetings afforded with other like-minded individuals, at similar junctures in their careers. As McLay and Brown (2010 p. 11)

¹⁸ Now referred to as the Headmasters' and Headmistresses' Conference (HMC).

¹⁹ For those who do not work daily in the sector the multiplicity of acronyms can be confusing. GSA stands for the Girls' Schools Association; ISA stands for the Independent Schools Association; IAPS stands for the Independent Association of Prep Schools and the ISC for the Independent Schools Council.

make clear, all of the respondents in their study: ‘found that the contact with other course members was the most useful aspect of this training’. Moreover, notwithstanding the intense competition that can exist between independent schools, especially those located geographically close to one another:

...the heads in the North West Group of the GSA [Girls’ Schools Association] were particularly enthusiastic about their network and how supportive this was to them. HMC heads who have a good rapport with their mentor also found this useful support. Despite the atmosphere of competition that necessarily obtains in local groups of independent schools, the establishment of supportive networks could be beneficial to all schools in improving leadership throughout (2010, p.113)

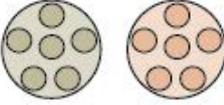
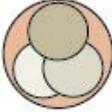
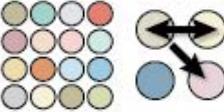
These schools have embraced the social media age and are using it to help each other. The organisations that support them are facilitating this. The HMC, for example, has an active Twitter account with, at the time of writing, a following of 4535²⁰. The GSA has an active account with a following of 5171²¹. The implication of these figures is clear: connecting across social networks for those working in education is important, and is becoming even more so. Teachers themselves are making connections and are being helped to do so by the professional organisations that support them. Twitter is an important platform on which such connections are being made.

In an attempt to produce a typology of Twitter networks, the Pew Research Centre and the Social Media Research Foundation (Rainie, 2014) analysed thousands of conversations across Twitter (see Figure 17). The research identified six distinct types of conversation that emerge on Twitter. Organisations such as the HMC or GSA are probably most frequently involved in the ‘In-Hub and Spoke’ type of conversation, but the beauty of Twitter is that other subsidiary conversations and connections can develop around a central core. The offshoots, branches and connections that result can both bewilderingly complex and impressive to visualise (see Figure 37 on page 176, for example).

²⁰ HMC stands for the Headmasters’ and Headmistresses’ Conference: https://Twitter.com/HMC_Org

²¹ GSA stands for Girls’ School Association: <https://Twitter.com/GSAUK>

The Six Structures of Twitter Conversation Networks

NETWORK TYPE			GROUPS	EXAMPLES
Divided 1		POLARIZED CROWDS This type illustrates different groups of Twitter users who discuss polarizing topics. They often rely on different sources of information and commonly do not interact with groups that disagree with them.	2 large	Politics or divisive topics that display separate "echo chamber" structures
Unified 2		TIGHT CROWDS This type captures close communities, such as conferences, professional topics and hobby groups, where participants strongly connect to one another for information, ideas and opinions.	2-6 medium	Hobbies, professional topics, conferences. No outsiders, all participants are members
Fragmented 3		BRAND CLUSTERS This type is formed around products and celebrities. These popular topics attract large fragmented Twitter populations, generating mass interest, but little connectivity.	Many small	Brands, public events, popular subjects
Clustered 4		COMMUNITY CLUSTERS These groups are created around global news events and popular topics. Communities form around multiple news sources. These community clusters are mostly disconnected from one another.	Many small and medium	Global news events
In-Hub & Spoke 5		BROADCAST NETWORK This type is often triggered by news media outlets and pundits who have loyal followers who retweet them. These communities are often star-shaped, as little interaction exists among members of the audience.	1 large, some secondary	News pundits and media outlets, famous individuals
Out-Hub & Spoke 6		SUPPORT NETWORK This type is created when companies, government agencies or organizations respond to complaints and customer requests. The company, or hub, account replies to many disconnected users, creating outward spokes.	1 large, some secondary	Companies and services with customer support

PEW RESEARCH CENTER in association with Social Media Research Foundation

Figure 17, A typology of Twitter networks (Rainie, 2014). Copyright information: used in accordance with the Pew Research Centre's guidelines on reproduction found here: <http://goo.gl/mQt9yv>.

As the PEW research makes clear, the direction of traffic on Twitter need not be all in one way. Herein lies one of the strengths of Twitter as a platform for professional development: leaders can ask questions, present answers or even collaborate remotely on a shared problem.

Learning in this new, invigorated, sense is very different from the passive absorption of information many educators associate with traditional staff training. Figure 18 illustrates the multifaceted nature of learning online in which traditional instruction is subsumed into higher value, higher autonomy personal learning facilitated by using the social web. In this new model of professional development learning can be asynchronous and done at location and pace of one's choosing.

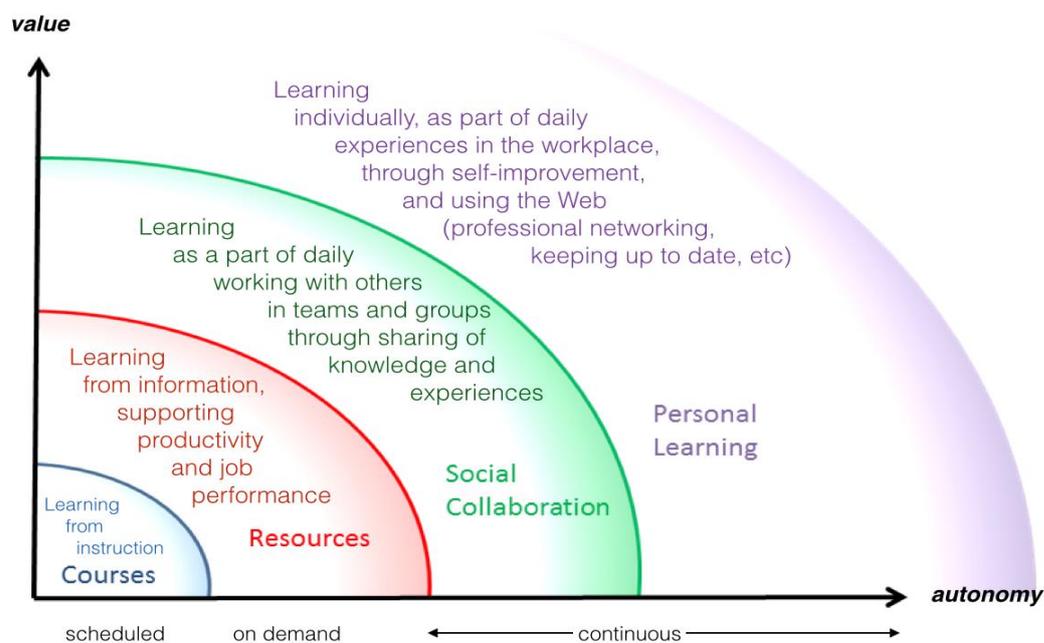


Figure 18, Types of modern learning- this graph powerfully illustrates the 'high value' and 'high autonomy' nature of the new types of learning that social networks like Twitter facilitate (Hart, 2015). Copyright information: used by permission of the author.

Other studies too have identified the social aspect of learning and training as a vital component of high quality professional development. Lave and Wenger (1991, p. 18) – a pair composed of an anthropologist and computer scientist respectively – combine their

expertise in an early study that explores the nature of learning and its intersection with computers. They talk evocatively of the social world as being:

...where work gets done, where meaning is constructed, where learning takes place every day, where innovation originates, and where identities are formed.

More recently several authors (Boerema, 2011 or Smith, 2007, for example) have sought to suggest that the traditional one-to-many model of training has been superseded by the new models of training that social media facilitates. Increasingly, they suggest, one-to-one or many-to-many training structures are becoming common.

So it is little surprise that many models of professional development amongst teachers explicitly stress the social aspects of learning and the extent to which learning can be facilitated by collaboration. Indeed, the notion of collaboration, sharing and networking has a long pedigree in educational literature. John Dewey (1950) emphasised the importance of social experiences when looking at the growth of knowledge. And Alderton et al. (2011) are at pains to point out that the idea of individuals constructing their knowledge through interaction with others lies at the heart of Vygotsky's influential theory of learning – a theory that has done much to shape pedagogical practice in schools the world over.

In the field of education, as we have seen, hashtag chats are a good example of how tweeps have capitalised on the power of Twitter to enable them to learn socially online. Figure 19 explains why educators might be attracted to social learning in this way, as well as detailing how novice tweeps can get involved.

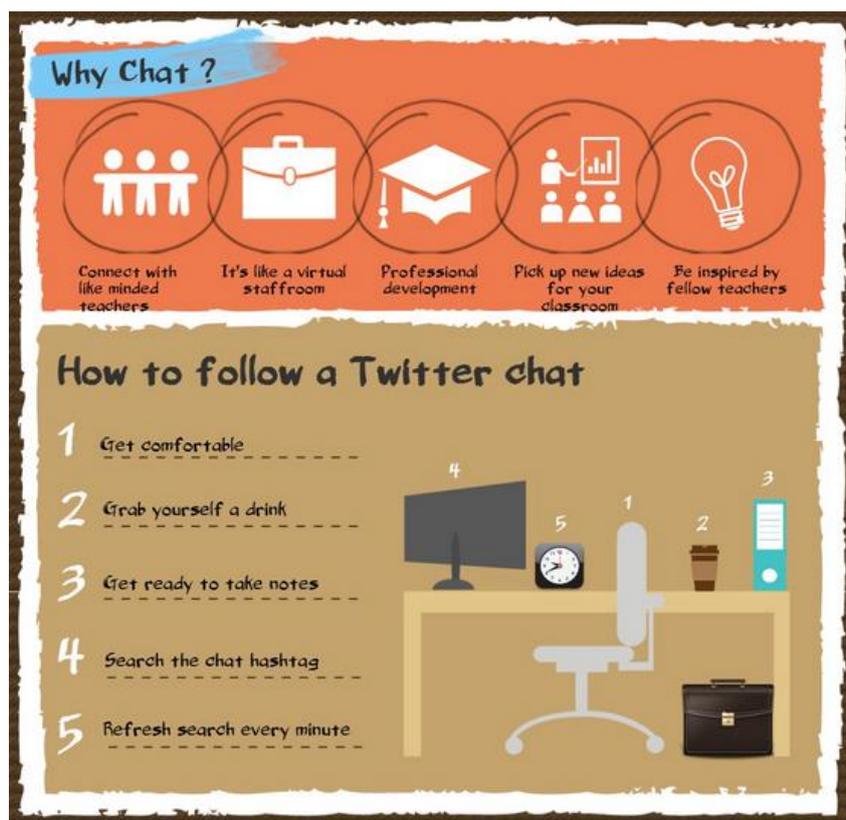


Figure 19, Reasons given for teachers to get involved in hashtag chats (Tait, 2014).
 Copyright information: used by permission of the author.

But whilst the value of learning socially might not be in doubt, the time that teachers can dedicate to it is constantly under attack such that ‘time becomes a significant issue and collaborative networking with other teachers diminishes’ (Alderton et al., 2011, p. 354). Herein lies the appeal of online social network sites such as Twitter which enable teachers to dip in and out of a stream of information and professionally useful advice *at their own convenience*.

Just as educators such as Sherrington (see page 5) are enthusiastic about Twitter’s power to help them develop professionally, so are a plethora of other tweeps (see Figure 3 on page 7 for just a small sample). These tweeps, it seems, have embraced Twitter’s power to inform, to educate and to enrich. Additionally, the ‘distributed and flat hierarchical structure’

(Saunders, 2014, p. 2) of such online networks, where tweeps at various levels of seniority can talk freely with other educators across the world, is another attraction to some educators. Their enthusiasm mirrors the sentiments of Thompson (2007, online) who opines:

People sneer at Twitter [and other social networks] as hipster narcissism, but the real appeal of Twitter is almost the inverse of narcissism. It's practically collectivist – you're creating a shared understanding larger than yourself.

Nor is such enthusiasm for social learning via Twitter purely anecdotal. A growing number of academic studies have identified Twitter's value as a tool for self-improvement. Jones & Day (2009, p. 14), in a study investigating the adoption of new technologies in schools, describe what happened when one of their study participants signed up to Twitter:

Louise was able to interact synchronously and quite effortlessly with a wide group of supportive, innovative and experienced practitioners.

Similarly Alderton et al. (2011) sampled 10 educators on Twitter in order to identify what perceived and actual benefits were arising from their use of the medium. Four strong themes were identified. Twitter allowed for:

1. Access to resources
2. Supportive relationships
3. Increased leadership capacity
4. Development of a professional vision

And in his doctoral thesis on the topic of Twitter use by school leaders Elias (2012, p. 11) is effusive about his own personal relationship with Twitter and the power of the platform to effect change:

....it has been my experience that access to like-minded and sometimes differently-minded leaders and thinkers has the capacity to accelerate and support more rapid and systematic school change.

Moreover Elias identified similar enthusiasm for learning socially using Twitter amongst those he questioned for his thesis. In his concluding paragraph (p. 83) he writes:

Educational leaders use these virtual spaces to hang out, collaborate, reflect on their practice, and construct meaning together. To the uninitiated it may appear that they are simply wasting their time 'playing around' with the latest technology trend, but to the leaders profiled in this study social network sites [such as Twitter] are powerful tools that empower them to be deliberate, purposeful, and self-directed in their learning.

This contention is borne out by Ferriter (2010) who is similarly positive about the role Twitter plays in providing a continuous flow of new ideas to support classroom practice in schools. Added to this, the work of Greenhow (2009) and Pascopella (2011) underscores the importance of social networking for head teachers in improving their practice.

In essence, a slew of recent literature supports the view that Twitter (and other similar social networks) facilitate the kind of social learning that earlier authors identified as being so powerful.

E.2. The psychology of leadership and social media use

Leaders, ultimately, are human beings driven by the same set of hopes and desires as everybody else. Considerable research has been done in the field of psychology as to what motivates humans and gives them a sense of fulfilment and, not surprisingly, much of this research has spilt over into the educational enterprise. The implications of research into what motivates us are wide ranging but are of particular significance for leaders in both understanding themselves and those whom they lead.

Maslow (1943), for example, identified a hierarchy of human needs, as in Figure 20:

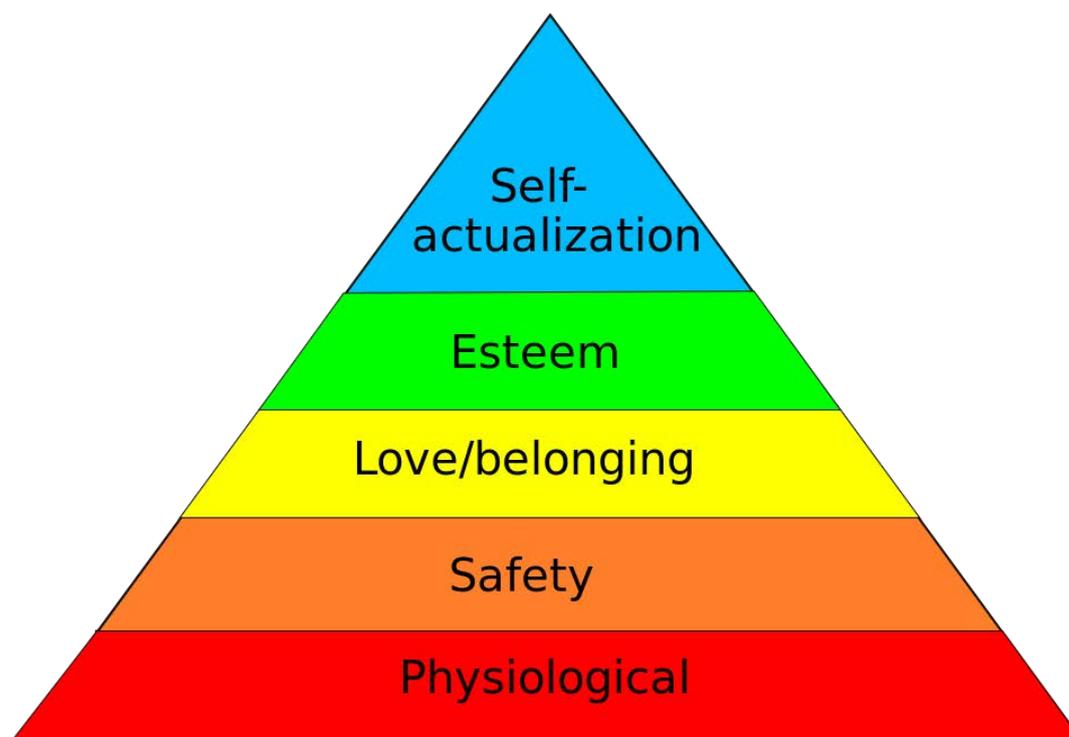


Figure 20, Maslow's hierarchy of needs represented as a pyramid with the more basic needs at the bottom (Maslow, 1943). Copyright information: 'Maslow's hierarchy of needs' by FireflySixtySeven retrieved from <https://goo.gl/71dNXm> is used under CC BY-SA 4.0.

Once their most basic needs are fulfilled, humans become preoccupied with the higher order needs; leaders are no exception.

So it is that authors, like Gronn (1999), have identified a strong sense of self-worth as a precondition to successful and fulfilled leadership (see Figure 14). Only those leaders whose psychological and self-fulfilment needs are met are therefore likely to reach their full potential. Subsequent research into the psychology of school leadership has shown that leaders' own sense of worth is a 'potent modifier or inhibitor in their journey to leadership' (Rhodes, 2012, p. 1). Thus the sort of social validation that platforms like Twitter facilitate is potentially of great significance. Twitter could well provide a conduit for school leaders through which they can begin to feel more fulfilled and affirmed as leaders emotionally as

well as cognitively. Again, Field would agree, in the sense that he highlights the importance of both to effective professional development:

Teaching is both an cognitive and emotional profession, and therefore both factors need attention (Field, 2011, p. 172).

More recent psychological research has suggested that Maslow's hierarchy of needs is only one small part of people's motivational make up. As Fowler (2014, online) states:

If you really want to [take] advantage of this new science – rather than focussing on a pyramid of needs – you should focus on: autonomy, relatedness, and competence.

Leaders, it is argued, feel motivated and fulfilled if they have freedom of action, without any sense of compulsion. Leaders, in short, enjoy the sensation of being autonomous. Additionally, they thrive in an environment where they feel they are contributing to something greater than themselves and are free to connect with others in a way that affirms and validates their work. Lastly, the research suggests, leaders like to feel that they are being effective at meeting every-day challenges and that they are successfully meeting or exceeding goals. Crucially the need for autonomy, relatedness and competence are not hierarchical or sequential as are the needs outlined by Maslow. They are each required, in equal measure, by all human beings, in order to flourish.

Social media sites, like Twitter, can feed on these universal human desires. Unsurprisingly, people like to be followed, admired and feel affirmed in their work – leaders no less so than anyone else. An appreciation of this need to be recognised is something of a theme running through Gronn's studies of leadership. Gronn talks of leaders' 'looking glass self'. He explains that leaders, in common with everyone else: 'normally take very careful account of what people think of them, and that they look at themselves constantly in relation to others' (1999, p. 68). So it is that a nascent form of addiction has been identified by some social commentators (Jamison, 2013; Andrew, 2011). This 'affirmation addiction' manifests itself in the need for constant validation via social networks: an insatiable hunger for retweets, favourites and an ever-burgeoning follower base.

Herein lies yet another possible change of emphasis wrought by social media that impinges on Gronn's 1999 model. In the first instance, no longer is there such a clear separation between the twin 'socialisation agencies' (see Figure 12) of family and school. In a world where school cannot be easily shut out, the influences of the workplace follow leaders everywhere. In the second instance, for much the same reason, the division between the 'domain of public perception' and the 'domain of inner work' (see Figure 14) is also increasingly blurred.

Academics working at the interface between psychology and anthropology also have instructive things to say about our human capacity to make meaningful friendships. Of particular significance in this area is the work of Dunbar (1992) who uncovered cognitive and biological constraints on human communication.

According to Dunbar, the size of the neocortex in the human brain places an upper limit on the number of stable human relationships any given individual is able to sustain. For evolutionary reasons this upper limit equates to a maximum of between 100 and 200 individuals in a typical network. This upper limit arises because individuals only have limited time and mental capacity. It might be assumed, though, that the online social world affords humans an opportunity to break free of physical constraints in this area to form meaningful networks that extend far beyond Dunbar's notional maximum.

Sure enough, several studies have attempted to uncover whether this is indeed the case. Dunbar (2008) himself conducted a study into the capacity of Facebook to lift the notional upper limit on human social interactions. Of greater significance to this study, though, is the work of Gonçalves et al (2011) who carried out research to see if Dunbar's number applied to Twitter users. Having analysed 1.7 million individuals across a period of six months the conclusion was that Dunbar's number did indeed hold true on the network. As the researchers explain:

The simple model that we have introduced offers a basic explanation of a seemingly complex phenomena observed in the empirical patterns on Twitter data and offers

support to Dunbar's hypothesis of a biological limit to the number of relationships that can be simultaneously maintained by a single individual. The social interaction mechanism we propose: limited attention and internal prioritization of interactions, is sufficiently parsimonious and robust to be applicable to a wide range of social scenarios (2011, online).

This finding has significant implications for this study: one of its aims is to explore the depth and breadth of school leaders' online networks. Do such networks indeed have an upper limit on their size?

E.3. Thought leadership, contagion and influence

A considerable body of research is developing into how people use Twitter to spread ideas. The power of the medium for spreading personal and corporate publicity (and for the selling of goods, of course) has ensured a steady stream of research into how to gain influence as a tweep. Sweetser and Kelleher (2011), for example, conducted a study that focussed on the use of Twitter amongst people working in public relations. Using a third party application called Twitalyser²² they attempted to quantify the leadership influence of their 77 study participants, each of whom were taken from a list of accredited public relations consultants. Meanwhile, Berger and Milkman (2011) showed convincingly that positive posts, ones containing uplifting news or stories, are more frequently forwarded than negative ones. They also showed, less surprisingly, that posts were more likely to gain wide readership (as measured by forwarding frequency) if they:

- a. *evoked high arousal emotions (awe, anger, anxiety)*
- b. *were informative, interesting and surprising, even if not to the user him or herself*
(2011, p. 6)

Because of the potential power of social networks in gaining influence and/or in making money, there has been considerable interest within the research community towards identifying and quantifying social media influence. A slew of online tools (Klout, PeerIndex, Postrank etc.) have sprung up purporting to calculate the strength and depth of users' reach and their effectiveness as 'thought leaders'²³.

The importance of influence has been picked up by educationalists too. Not only do schools face ranking by examination grades, but also by social media influence, as Figure 21 shows.

²² Found at <http://twitalyzer.com/>

²³ The term 'thought leader' was originally coined in 1994 by Kurtzman when he was editor of Strategy and Business Magazine. Kurtzman defined a thought leader as anyone who had ideas 'that merited attention' (Israel, 2012, online). The term is now frequently used to describe organisations and individuals who spread contagious ideas through social media channels.

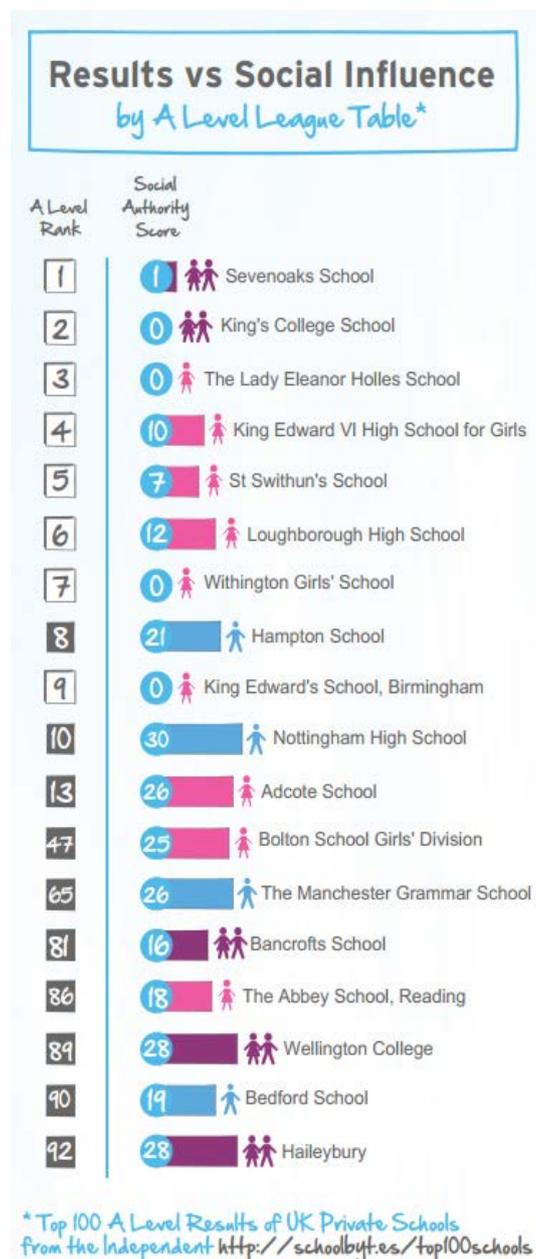


Figure 21, UK independent schools ranked by social media influence (Interactive Schools, 2013). Copyright information: used by permission of @intSchools.

In the competitive marketplace that has developed around schools it is no surprise that such rankings matter; schools ranked highly are keen to trumpet their success. The infographic shown in Figure 21, developed by a company called Interactive Schools, and distributed through Twitter, was reTweeted several times by schools shown in a good light by the figures.

Just as organisations are in on the act, so it is with individuals. Recent research by two Harvard academics showed that people like to talk about themselves on social media (Tamir and Mitchel, 2012). Added to this, they will even pass up on monetary rewards for the chance to indulge in some personal broadcasts. In a similar vein, Naaman et al. (2010, p. 4) showed that 80% of Twitter users could be classified as 'meformers' - people who Tweet mainly about themselves, whilst only 20% were 'informers' those who shared information about others.

Here then is evidence that there is, at least on the basis of the work carried out by some researchers, a faintly narcissistic side to social networking. Nonetheless, it would seem that individuals keen to get on in life and to move up the career ladder ignore the ability to market themselves online at their peril. Unsurprisingly, social media sites themselves are awash with posts about how they can be used to get a 'dream job' or enhance users' 'personal brand' and researchers are becoming increasingly interested in the area of online presence. A recent study by Labrecque et al (2011), for example, explored the personal brands of twelve individuals by trawling internet search engines to find information about them. The study revealed the extent of the digital footprint (or shadow) users of social networks generate.

Similarly, there have been a succession of media stories about the way firms, universities, schools and other recruiting bodies use social networks to determine who the best candidates for their vacancies are. By way of illustration, recent study of 300 randomly chosen individuals, all of whom were involved in recruitment at their firms, showed that 91% used social networks as an aid to screening prospective job applicants (Sundeberg,

2013). The study found, for instance, that 91% of employers use social network sites to screen prospective employees, whilst 53% of employers explicitly mentioned Twitter as a site that they use to vet employees (Buzzon, 2011). Thus the importance of social networks as a conduit for information about individuals is hammered home. Squeamishness about self-promotion, at least professionally, seems outdated and under threat.

And there is evidence that school leaders are using social networks to carve out a 'thought leadership' niche for themselves. Alderton's study of Twitter educators, for example, identified that several of the participants were using Twitter to give them 'a voice and confidence in educational discussions'. One of the respondents is worth quoting in full:

Twitter has helped me to build a strong professional reputation. Because the content that I share is seen as valuable by a large number of followers, my voice is recognized and respected. That ability to develop a reputation as an expert is something that many teachers working with traditional tools in traditional classrooms don't ever have. I've always known that I was the intellectual equal to those working beyond the classroom. Twitter gives me the chance to publicly prove that (Alderton et al., 2011, online).

Here is clear evidence of the way in which educators are using Twitter to promote themselves and so further their careers. They are also, as we have already seen, using social network sites to construct personal learning networks (PLNs). Writing before Twitter had really taken off Downes (2006) identified the characteristics of a personal learning network as being based on 'content, openness, and reciprocity'. So it is with the PLNs that operate on Twitter, where everything posted, by default, is in the public domain.

All this serves to illustrate a growing consensus within the educational establishment, as in other fields, that social network sites cannot be ignored, rather they should be embraced (see, for example, Kearley, 2012 and Smith, 2013 or Sherrington, 2013). As in schools, so in higher education: Becker (2010, online), for example, argues passionately that those working in HE - and especially those in university departments of education - cannot afford to bury their heads in the sand:

If professors of educational leadership truly want to be the thought leaders and to be a part of any sort of school change process, they need to free themselves from the shackles of tradition. They need to stop publishing their high-quality, thoughtful work in journals that nobody who does the work of school leadership reads. ... They should disseminate their ideas through blogs so they don't have to wait for the ridiculously long lag-time associated with publishing in journals. ... They [should] also regularly engage with educators and educational policy-makers through Twitter.

Thus right across the educational enterprise, not least in schools, a consensus is emerging that social network sites, such as Twitter, need to be engaged with. This is not to suggest, though, that such engagement is without its problems. Deiser and Newton (2013, online) talk eloquently of the 'uncertainty and unease' that social networks can generate amongst those in the educational establishment. Even more significantly they highlight the 'unbridled' nature of the new technologies which, if not handled carefully, can let 'internal, privileged information suddenly go public virally'. And they point to the capacity for social network sites to turn traditional power structures on their head:

What's more, there's a mismatch between the logic of participatory media and the still-reigning 20th-century model of management and organizations, with its emphasis on linear processes and control. Social media encourages horizontal collaboration and unscripted conversations that travel in random paths across management hierarchies. It thereby short-circuits established power dynamics and traditional lines of communication (Deiser and Newton, 2013, online).

There are, therefore, some important issues for users of social networks in schools to engage with. Notwithstanding these dangers, Deiser and Newton are adamant, not only that social networks need to be embraced, *but that doing so may even call for a new type of leader*: one who can address all the various facets of the new technologies and leverage them to their own advantage (see Table 7):

Domain	Dimension	Explanation
Personal	1. Producer	<ul style="list-style-type: none"> • Develop creative competence (authenticity, storytelling and artistic vision). • Hone technical skills (especially video production).
	2. Distributor	<ul style="list-style-type: none"> • Understand cross-platform dynamics and what causes messages to go viral. • Build and sustain a body of social followers.
	3. Recipient	<ul style="list-style-type: none"> • Create resonance via selective replies/linking. • Make sense of the noise through intelligent filtering.
Strategic or organizational	4. Adviser	<ul style="list-style-type: none"> • Enable and support 360-degree environment in social media usage. • Co-ordinate and channel activities within span of control.
	5. Architect	<ul style="list-style-type: none"> • Balance vertical accountability and horizontal collaboration. • Leverage social media for key business functions.
	6. Analyst	<ul style="list-style-type: none"> • Monitor dynamics of social-media industry. • Understand cultural and behavioural impact.

Table 7, The six dimensions of social-media-literate leadership (Diesner and Newton, 2013)

Unlocking how this is done in reality within a small section of the school leadership community is, in essence, the *sine qua non* of this study.

The facets of a leadership based on active use of social media identified by Deiser and Newton above are instructive, and are referred back to extensively in what follows (see pages 206 and 215, for example). One striking feature of the Deiser and Newton analysis is the extent to which they argue that effective social media leaders need such a multi-faceted command of the medium. It is not enough just to consume, leaders need to create their own content too, as well as devise the organisational architecture that balances ‘vertical accountability and horizontal collaboration’ (Table 7).

In this sense the Deiser and Newton insights build upon the work of Gronn who had begun to identify the need for leaders to adapt and change their identities quickly, and to reposition themselves quickly as circumstances require. As Gronn (1999, p. 30) explains:

Career theorists now refer to the idea of a new career contract – less in respect of commitment to a particular organisation or vocation but as regards a new understanding or agreement with oneself to construct a self-determined, do it yourself career of choice.

The unsettling effects of globalisation which had begun to flatten and democratise hierarchical school structures in 1999, have become only more pronounced since. And, of course, they are much accelerated by the advent of social media.

Those who do best in this brave new world are, according to Dixon (2012), immersed in the culture of online sharing. Dixon depicts social media engagement as operating along a continuum where engagement is seen to occur in a series of steps, the highest of which transmogrifies passive engagement into active engagement and in which leadership plays a significant role:

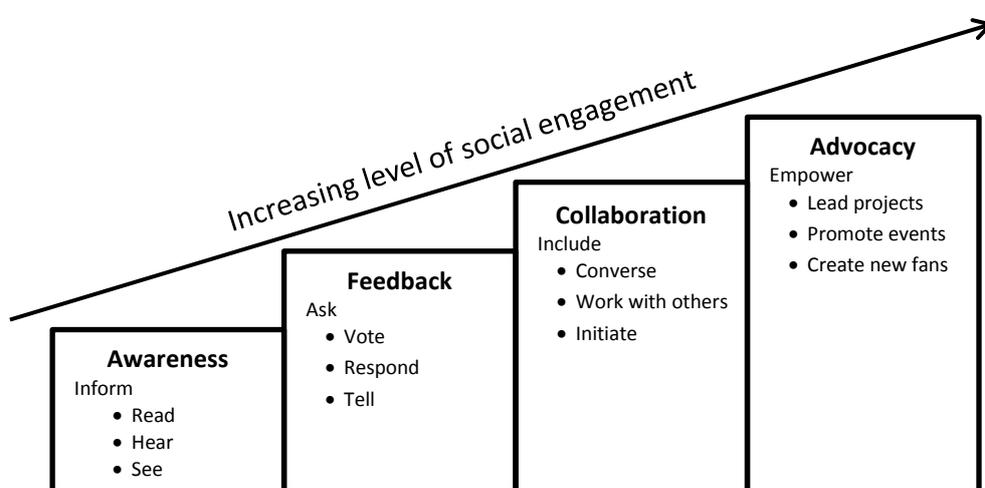


Figure 22, Dixon's model of social media engagement (Dixon, 2012, p. 6)

There are clear parallels here with the work of Puentedura (2010) in conceptualising the ways in which technology can change the teachers' workflows.

Puentedura envisages four ways in which technology, such as that provided by social networking, can transform learning in schools. His description of the way in which technology can change schooling has become known as the SAMR model.

Puentedura identifies four discrete stages in his model that typify the adoption of technology in schools:

1. **Substitution**: technology acts as a tool substitute, with no functional change.

2. **Augmentation:** technology acts as a direct tool substitute, with functional improvement.
3. **Modification:** technology allows for significant task redesign.
4. **Redefinition:** technology allows for the creation of new tasks previously inconceivable.

When viewed diagrammatically a clear hierarchy emerges:

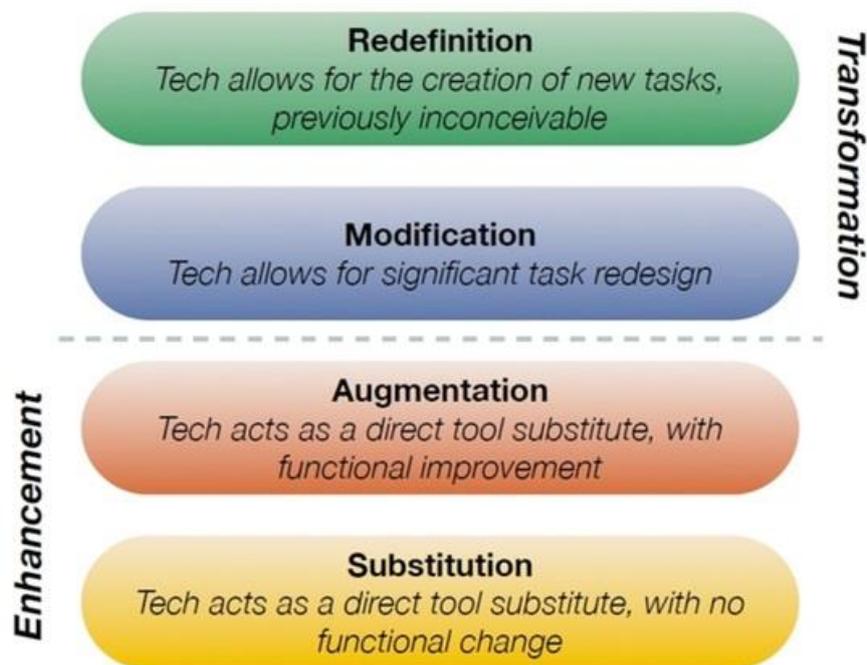


Figure 23, The SAMR model hierarchy (Puentedura, 2010, online). Copyright information: ‘The SAMR model’ by Puentedura retrieved from <http://goo.gl/RasfOa> is used under CC BY-SA 4.0.

It seems that Puentedura’s model could equally well be applied to the ways in which technology - and social media in particular - has begun to transform leaders’ passage to senior leadership. As we shall see, Gronn’s original conception of the process has been significantly altered by the creeping advance of technology. But are the changes to the ways leaders learn and progress sufficiently radical to be dubbed ‘transformational’?

Dixon and Puentedura have thrown a gauntlet down: new technologies make significant demands on leaders’ time and expertise; leaders are invited to take up the challenge that

social networks present and to reap the potential rewards. The research questions in this study (see page 15) are designed to explore the extent to which a specific group of school leaders are meeting this challenge.

E.4. A summary of what Twitter adds to the professional development landscape

In concluding this section it is instructive to signpost the elements of the use of Twitter as a professional development tool that are new. Here the disparate elements of the preceding discussion are drawn together to show in what ways Twitter has the potential to supplement, or even replace, more traditional forms of professional development.

I have opted for a table here, following the example of Dixon (2012), who adopted a similar strategy in making his own case for Twitter (see Table 2 on page 8). I have taken the liberty of using Field’s (2011) list of the elements of good professional development as the framework for the table:

Professional development should be...	...what the literature suggests Twitter offers
Relevant	Twitter allows users to seek out fellow tweeps who resonate with them. In this sense, it allows for a broader reach that would be possible via a physical meeting. By following tweeps and interacting with them (see page 50, for example) it is possible to build a ‘community of practice’ (Sauers & Richardson, 2015, p. 11) that is tailored to the individual, current and therefore relevant. The literature, therefore, points to Twitter increasing the relevance of professional development for individuals.
Ongoing	Twitter allows for both synchronous and asynchronous conversations in a way that traditional professional development does not. It is easy relatively keep discussions going even when the protagonists are not simultaneously available (see Figure 18 on page 67, for example). Tweeps are able to seek out experts from a wide variety of fields and even to start direct conversations with high-level decision makers in a way that would be unthinkable under traditional methods of professional development (see Figure 16 on page 58). And of course Twitter does not stop with the end of a meeting as can be the case with traditional forms of professional development. See Doyle’s (2015) comments about Twitter discussed on page 52, for example.
Frequent	Asynchronous meetings, mediated over the internet, are able to fit around even the busiest leader’s schedule. The 140-character limit can be a boon in keeping conversations short and to-the-point and hashtags can be used

Professional development should be...	...what the literature suggests Twitter offers
	to home in on relevant content (see page 58). The research points to frequency of high quality professional development increasing where practitioners are able to access Twitter.
Reflective	In writing something down for an audience of relatively anonymous followers people can be surprisingly open and self-critical (see later discussion of this on page 123). The concept of a 'shared understanding, larger than yourself' (Thompson, 2007, online) points forcefully towards the potential for Twitter to increase reflectiveness amongst practitioners. It also points to Twitter's ability to incubate a greater awareness amongst leaders of the wider community of educators.
Evidence-based	Barriers to entry are negligible on Twitter meaning that anyone can set themselves up as a thought leader and begin making pronouncements, whether or not they are evidence-based. Herein lies a potential weakness of the medium which warrants further exploration. However, it is worth noting that the purveyors of traditional, peer-reviewed evidence-based materials are being exhorted by some to start disseminating their work online, where it will gain a wider readership (see the discussion on page 79, for example). It is also worth noting that there is a nascent field of research into the reliability of Twitter as a source of information (see discussion on page 61).
Collaborative	The ability to collaborate via Twitter is a particular strength of the medium. As we have seen (page 70, for example) tweeps value affordances to share resources, build supportive relationships and to develop themselves as leaders and professionals. That such collaboration can occur with no cost, and with little or no regard to national boundaries, is an added advantage. Levels of collaboration have the potential to exceed those offered by more traditional forms of professional development.
Personalized	Because individuals have their own accounts, and cultivate their own stable of people they interact with Twitter, the literature suggests that the medium is highly personal. Carpenter and Krutka's findings (discussed on page 52) are instructive. Twitter, they argue, 'is immediate, <i>is personalized</i> [my italics] and can draw on networks that are less restricted by time and place (2014, p. 419).

Table 8, Ways in which Twitter offers new approaches to traditional professional development.

In short, there are all sorts of ways in which Twitter offers a new twist on traditional forms of professional development. But balance is important: it is certainly not the case that social media is not without its critics, nor does it necessarily offer a panacea. The nature of the criticisms is discussed in detail in what follows.

F. Detractors of social media

It would be wrong to give the impression that the view within the school leadership community, and amongst researchers, is entirely one of unanimous, unqualified endorsement for social media sites like Twitter. Social media does have its detractors.

F.1. Criticisms of social network sites

The informality of social network sites and the messy, organic way they grow is volubly criticised by some. With so many authors championing the benefits of social network engagement it is easy to be duped into thinking that the dissenters have been silenced. However there remains a small, but significant, body of opinion decrying the use of social networks, particularly in schools. Criticisms broadly fall under the following headings:

F.1.1. Threat to power structures

Dixon (2012, p.4) describes many school leaders as being 'wary of using social media'. Reasons he cites include 'technophobia, school policy.... and concerns about student safety'. Additionally, as all those who have worked in schools will know, there are many teachers who feel uneasy about the threat to traditional power structures that social networks represent. These educators resist technological change because they see it as a threat to their existing professional identities. As Jones & Day (2009) remark:

Technological innovation that challenges historical teacher–learner and teaching learning relationships often requires changes of attitudes, roles, and relationships between teachers and learners, as well as the acquisition of new skill sets.

And so, some leaders at least, are apprehensive about the effects of social media in their schools.

F.1.2. Effect on brain physiology

To add to these concerns, Professor Susan Greenfield's recent pronouncements, though eliciting dissent from some sections of the academy, have suggested links between social

network use and adverse changes to pupils' brains. Professor Greenfield, a neuroscientist at Oxford University, is quoted as saying:

My fear is that these technologies are infantilising the brain into the state of small children who are attracted by buzzing noises and bright lights, who have a small attention span and who live for the moment (Derbyshire, 2009, online).

Thus it is argued that powers of concentration and the ability to stick at a task for a long time are being undermined by the instant gratification afforded by social media sites.

Neither are such concerns restricted to the young. It doesn't take long to search online and find adults bemoaning the corrosive effect that social media is having on their personal and professional lives. For example, Cal Newport, Assistant Professor of Computer Science at Georgetown University, and prolific author on productivity issues, is very explicit in voicing what he sees as the deleterious effects of online social networking. Social media, he writes, is:

...digital nicotine. It's engineered to hook you so you can be sliced and diced into advertising fodder. It's not worth losing your cognitive autonomy over — unless your job depends on it, you should probably quit (Newport, 2016, online).

As with children, the argument goes, social media can prevent adults from sticking at hard, long-range tasks by feeding them with a constant diet of petty distractions.

F.1.3. Self-esteem issues

In a similar vein social networks have been blamed for an epidemic of low self-esteem, body image issues, depression and general malaise amongst the populous. An academic study of 1000 teenaged girls carried out in Australia recently, for example, pointed to the way in which social media 'intensified' conversations about emotive issues such as weight, friendship groups and appearance (Marriner, 2013, online).

F.1.4. Reductions in productivity

Nor is such criticism confined to people’s private lives. A recent study by the law firm William Fry (2013, online) found that on average employees spend 56 minutes every day on social media sites and that a significant minority of workers (47%) believe that the use of social media decreases their productivity. In a recent high profile reaction against this Steve Hilton, former aide to David Cameron, became so distracted by pull-to-refresh apps like Twitter that he took the drastic step of throwing away his mobile phone (Hilton, 2016, online).

F.1.5. Harassment and gender issues

Additionally, significant differences have been identified between the genders in terms of social media use, with some studies appearing to suggest that women feel more vulnerable and inhibited on social networks than do their male counterparts. Duggan (2014, online), notes that whilst both genders experience harassment, certain types of harassment disproportionately affect young women. If social networks have had such negative effects on such large sections of society it seems reasonable to assume that school leaders will be among their number.

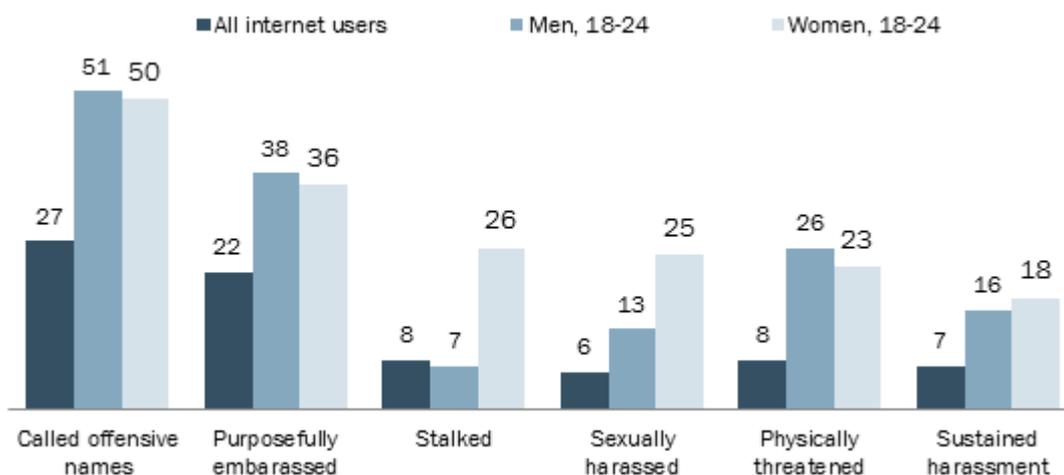


Figure 24, The most severe forms of online harassment fall disproportionately onto the shoulders of young women (Duggan, 2014, online).

F.1.6. Addictiveness

Additional concerns centre around evidence that social networks, like Twitter, can be highly addictive, becoming a drain on users' time and limiting their productivity. Echoing the Newport's observations (see page 87), Ian Boghost, a technologist, describes sites like Twitter as the 'cigarette of this century' and points to the fact that many people:

...check [their networks] compulsively at the dinner table. Now we all stow our devices on the nightstand before bed, and check them first thing in the morning. We all do. It's not abnormal, and it's not just for business. It's just what people do (2012, online).

Indeed such sites are deliberately designed to be addictive. As the author behind the Schumpeter column, writing in the Economist, notes: habit forming products help companies squeeze more money and information from their customers. And they are very hard to relinquish once you are hooked:

...once you have incorporated Twitter into your daily routine and devoted time to a following, you will be reluctant to switch to a rival... the more you Tweet, the better and more popular your Twitter account becomes... (Schumpeter, 2015, p. 47).

Sites like Twitter have been explicitly designed to exploit the findings of psychologists into habit forming behaviours – specifically that users are most prone to habit formation when an action is rewarded in a *variable and unpredictable way*. Three aspects of Twitter use are seen as supplying such variable, but pleasant, re-enforcement:

1. **The reward of the tribe:** people who use Twitter are rewarded with social validation when their Tweets are reTweeted.
2. **The reward of the hunt:** users quickly scroll through their feeds in search of the latest gossip or news.
3. **The reward of self-fulfilment:** users are driven to amass more followers or to have reached the top of their feed and have dealt with all the incoming news (Schumpeter, 2015).

Here is evidence that using Twitter can become, for some at least, a significant drain on their time and attention. There are issues here, therefore, for senior leaders in schools to engage with, particularly if they themselves are enthusiastic social network users. These issues may become all the more acute if, as Gronn suggests, leaders continue to be motivated by:

...the glittering prizes – numerous privileges and rewards yearned for and esteemed because of the tangible monetary gain, security, comfort, status and power they bestow (1999, p. 29).

F.1.7. The majority illusion

Finally, recent research has shown (Lerman et al, 2015) that social media platforms have enormous potential to distort reality – a phenomenon known as the ‘majority illusion’. This illusion stems, in part, from the friendship paradox – that fact that, on average, your social media acquaintances will have more friends than you do. The friendship paradox arises because, whilst most people will have a similar number of friends as you do, a few will have enormously more. These abnormally popular individuals skew the average resulting in the uncomfortable fact that, on average, you will be less popular than those you associate with.

And so it is with opinion formers. Some individuals have a disproportionate ability to sway public opinion, or to get their ideas heard – even if their opinions are not widely held. In the two diagrams below, for example, which depict identical networks, there are significant differences in the number of nodes which regard the colour red as widespread. In the left-hand example, the uncoloured nodes see more than half of their neighbours as red. In the right-hand example, this is not true for any of the uncoloured nodes. Social media users are rarely aware of the influence certain highly connected individuals have over the news and opinions they see in their timelines.

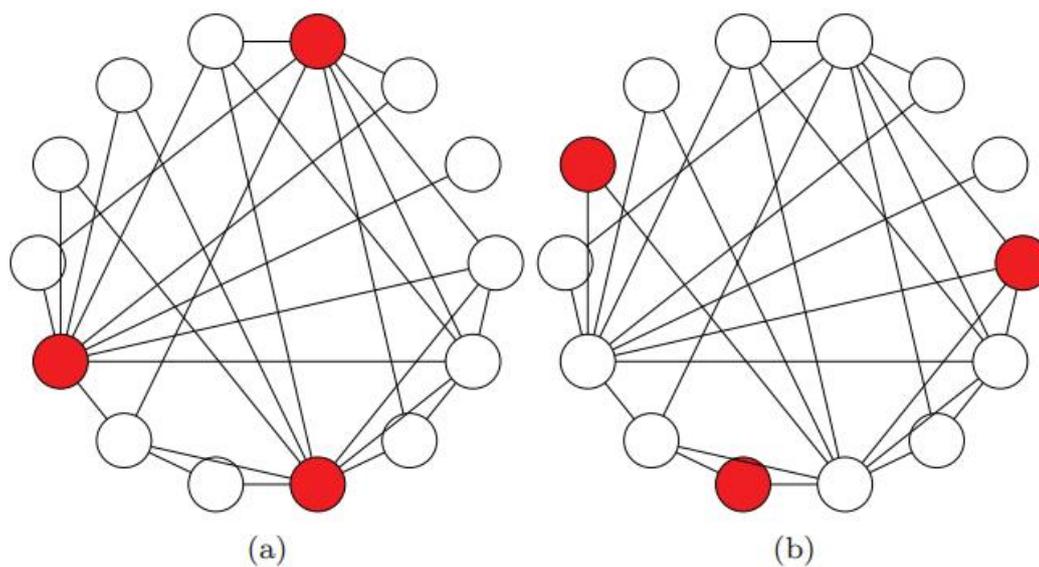


Figure 25, The majority illusion (Lerman et al , 2015, p. 3).

When the majority illusion is allied to the fact that leaders, in particular, often resist strongly views that contradict their own it is easy to see how Twitter could, in the wrong hands, stoke hubris.

Syed (2015), for example, writing about the various strands of research in this area, points out that leaders go to enormous lengths to avoid what he calls 'cognitive dissonance'. Those in power are especially resistant to cognitive dissonance. They have a lot to lose from changing their mind. As a result many go to extraordinary lengths, both consciously and unconsciously, to seek out sources of information that confirm their chosen course of action or opinion as being the right one. An elaborate web of self-deception can ensue, aided and abetted by selective treatment of fact and opinion. Twitter lends itself to this bolstering of unpopular views because it is easy to seek out only those who agree with you.

G. Background to social media research

In this, the final section of Chapter 2, the newly emerging literature on social media in research contexts is discussed. The chapter is then summarised, before a detailed explanation of the research carried out in this study embarked upon in Chapter 3.

G.1. Antecedent studies in social media research outside educational settings

Now that the scene has been set in terms of what other authors have been saying about social networks it seems appropriate to delve a little deeper into the specifics of research into social network sites, and into research on Twitter in particular.

As users interact with social networks they leave behind traces of their activities, many of which are freely available to businesses and researchers to use for their own purposes. For example, a single Twitter post – visible to all – contains a rich trove of data that can be leveraged by an inquisitive researcher to shed light on a particular topic. Analysis of this information, more correctly termed meta-data (data about data), has spawned a whole new branch of research known as *data mining*.

One of the beauties of ‘mining’ data from social networks in this way is that researchers have at their fingertips, with little or no effort on their part, a huge repository of data ripe for analysis:

- Who said what to whom?
- When did they say it?
- Where were they when they said it?
- Have they said it before? etc., etc.

One, now comparatively dated, study showed that the quantity of data like this, available on the internet, roughly doubles every year (Adriaans and Zantinge, 1996). Back in 1996 there were just over 1 billion internet users worldwide, whereas today there are well over 3 times that number (Internet World Stats, 2015, online). The rate of growth will only have

increased. In short, there is now so much documented activity, containing so much valuable information about the machinations of users, that researchers can no longer afford to ignore it.

As has been explained (see page 14), one of Twitter's defining characteristics is its openness as a forum for discussion. Anyone can join; anyone can see anyone else's Tweets. Needless to say, this has got the research community interested and precipitated an avalanche of studies attempting to harvest and draw meaning from the discussions that have been taking place. All such studies make use of techniques that fall loosely under the umbrella term *data mining*, where data mining as it relates to social media is defined as:

... the process of representing, analysing, and extracting actionable patterns from social media data (Zafarani et al., 2014, p. 16)

A study by Waters and Jamal (2011) is typical of the genre. In this study the Twitter feeds of a group of individuals were randomly selected; their Tweets were analysed over a period of time. This generated information about the make-up and activities of the group which led to a series of illuminating findings.

Not only is data mining being increasingly used in the world of business (Larose, 2005), but it is also starting to make an impact in educational research (Ryan, 2012). Because the information is stored digitally it can be readily retrieved, manipulated and used to shed light on a variety of research topics.

Nor is it necessary to have a background in mathematics or computer science to start making use of such techniques because there is a wealth of open source material on the internet which novices can start using straight away. Researchers who are still sceptical, would do well to consider the arguments advanced by Ryan (2012, online) in favour of data mining:

1. Data is readily available and, in almost all cases, 'ecologically valid' (unsullied by researcher bias or incompleteness).

2. Researchers can dispense with time consuming steps such as subject recruitment, scheduling of studies and data entry – computers do all the work for them.
3. Replication is more feasible; studies can often be repeated time and again with little or no further effort.
4. The volume of data available far exceeds that which could be collected even by the most industrious researcher, making studies using data mining techniques less troubled by issues of statistical validity.

This is not to suggest, however, that data mining provides a panacea for all data collection and research problems. Even enthusiastic proponents of the techniques warn of their potential for misuse:

Data mining is easy to do badly. A little knowledge is especially dangerous when it comes to applying powerful models based on large data sets (Larose, 2005, p. 10).

And there are important factors to take into consideration when analysing the behaviour and output of individuals on sites like Twitter. These factors need to be taken into consideration when looking for meaning and significance in the data collected. Aral and Walker (2012), point to three factors that drive content creation and network patterns on Twitter:

1. **Homophily** - people tend to follow their friends or like-minded individuals.
2. **Confounding effects** - the tendency for connected individuals to be exposed the same external stimuli.
3. **Simultaneity** - the tendency for connected individuals to co-influence each other and behave similarly at approximately the same time.

These factors do not necessarily undermine the value of data mined from users' Twitter accounts, though researchers should not express surprise if they find general agreement amongst groups of users or interest in similar topics – the forum is constructed in such a way that such things arise organically anyway. As in real life, people surround themselves

with like-minded interlocutors (see Figure 25 and the earlier discussion about the majority illusion).

This demonstrates then that, as with all other analysis and collection techniques, data mining needs to be used judiciously, with a constant eye kept on the validity of the study and potential for triangulation (see page 122 where these issues are discussed in the context of this study). Equally, the very fact that the field is so new presents difficulties. The core educational research methods textbooks are silent on the topics of data-mining social networks. Even on the internet there is surprisingly little material available – particularly material that relates data mining to the world of educational research. Books published as recently as 2010, still make reference to the dearth of literature in the field:

However because it is still young and evolving, there has not yet emerged a widely accepted research framework that offers a holistic view about the major research questions, methodologies, techniques and applications of network mining research.
(Meman et al., 2010, p.15)

Thus the field is wide open for researchers to make their mark. New techniques and tools will emerge, but for the time being the pioneers can largely make their own rules. The research methodology discussed in the next chapter details the approach that was taken in the context of this study.

G.2. Antecedent studies in social media research in educational settings

As we have seen, data mining is a nascent field. However, Ryan (2012) identifies several ways in which data mining can be used in the educational context. These ways, he suggests, fall into one of several general categories (see Figure 26):

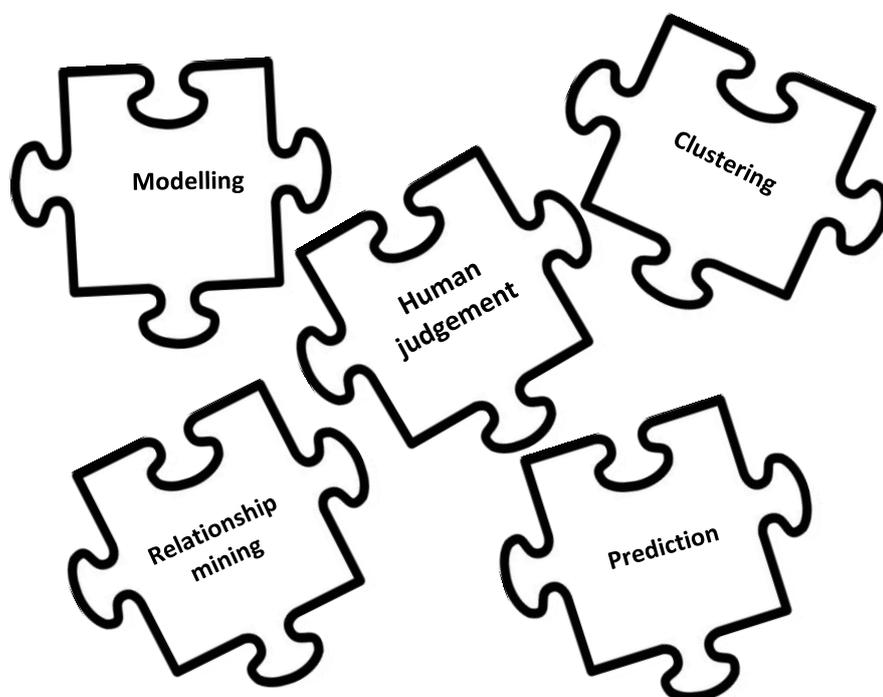


Figure 26, The main approaches to the use of data mining in educational research (adapted from Ryan, 2012, p. 56).

It is possible to find examples of each type of study already having been made in one educational setting or another, though often the categories overlap. In this study particular focus is made on what Ryan refers to as the ‘distillation of data for human judgement’. According to Ryan (2012, online):

When data is distilled for identification, data is displayed in ways that enable a human being to easily identify well-known patterns that are nonetheless difficult to formally express.

Fortuitously there is precedent for this type of study. Linvill et al. (2012), for example, collected the Tweets from the official Twitter feeds of a selection of US universities. These Tweets were then coded to according to the audience they were seen to be addressing.

Further coding identified the extent to which the Tweets were part of a conversation or simply one-sided broadcasts of information. A significant amount of data (in this case comprising 1130 Tweets) enabled statistical analysis of the various categories assigned by the researchers. Agreement between the researchers on the assignment of Tweets to categories was assessed using Cohen's Kappa Coefficient – a statistical measure of agreement between those coding items of text.

A similar content analysis of Twitter feeds was conducted by Waters and Jamal (2011) in their study of non-profit organisations. Non-profit organisations were found using an almanac of charities and these charities were then checked on Twitter to see whether they had active Twitter accounts. A third of the active accounts were then selected at random for further analysis. Here again Tweets were coded, this time by students trained by Waters and her colleagues. Reliability of the students' coding was quantified using a different measure of consistency – in this case a statistical test known as Cronbach's Alpha.

As is explained in the next chapter, in this study the need for reliability checking was largely circumvented by all the coding having been carried out by the researcher himself. However, the mechanics of coding Tweets and of identifying emerging themes from the resultant data that characterise the Waters and Jamal study have heavily influenced the research design used in this thesis (see page 105 onwards).

As yet further illustration of the precedent for this kind of research using Twitter, several studies have used similar methods to discover that textual analysis of micro-blogs (such as Twitter) can reveal information about personality traits (Qiu et al., 2012). Boyd et al. (2010), for example, collected random Tweets from the Twitter public timeline and analysed these in terms of their syntax, producing quantitative data on the proportion of users using particular syntactical formulations in their Tweets.

These same researchers also used Twitter to collect qualitative data from users about their use of Twitter. As they explain, their:

...final data set consists of qualitative comments on Twitter practices stemming from responses [that] were received to a series of questions on @zephopria's public Twitter account, which had over 12000 followers [questions included]:

- 1. What do you think are the different reasons why people RT something? [99 responses]*
- 2. What kinds of content are you most likely to reTweet? (Why?) [73 responses]*
(Boyd et al. 2010, p. 4)

Several recent (as yet unpublished) doctoral theses have also made use of data mining on Twitter as a principal method of data collection (Elias, 2012 and Deyamport, 2013 are both good examples of the genre).

So, not only is Twitter's potential as a store of information ripe for analysis beginning to be appreciated within the academy, but it can even be used by researchers as a direct means of eliciting answers from respondents to research questions. Twitter allows users' views to be collected quickly (instantaneously, in some cases). It therefor circumvents problems with traditional forms of research in which the time taken to collect findings renders much of the amassed information out of date by the time it is properly analysed, discussed and published. The ease with which data can be mined on Twitter and the gamut of (often free) Twitter analysis tools which automate processes which would otherwise take a huge amount of time mean that studies of this type are becoming increasingly popular; more are being published all the time.

G.3. Criticisms of social media research

Just as there is criticism of social media use itself, so there is criticism of the research that emerges from it. The most stinging criticisms of the platforms are that they do not generate reliable, truly representative information about their users. The suggestion is, that the

validity of research using data-mining techniques on social network sites is fatally flawed. As Berger points out:

In most oral conversations, we don't have time to think about exactly the right thing to say. We fill conversational spaces by saying what's top of mind. But when you write something, you have the time to construct and refine what you say, so it involves more self-presentation (Berger quoted by Tierney, 2013, online).

This suggests that posts on social network sites are inherently unreliable, giving researchers a wildly inaccurate view of what users are really thinking and doing. Indeed, according to Berger researchers are often faced with a 'relentlessly perfect' image of users' lives and work because people are inclined only to post positive things, particularly when they know they are talking to a big audience.

To make matters worse, other studies have shown that the steady stream of positive posts, far from uplifting fellow users, actually makes them feel resentful and unhappy. This then is yet another criticism of social networks as a tool for personal and corporate self-improvement. Users begin to wallow in self-pity and envy, jealous that their own lives are not as successful and fulfilled as those they read about and compare themselves to online. This sets in train a vicious spiral of envy and other negative emotions amongst habitual users (Krasnova et al., 2013). The implication is clear: as a basis for research into the life and work practices of their users, social network sites need to be treated with caution.

If all this sounds rather damning, it is worth drawing attention to the fact that there is disagreement within the academy. Other researchers suggest that confidence *can* be placed in research into social network sites. In the context of Facebook, for example, one study purported to find resounding evidence that online profiles *do* reflect actual personality, not self-idealisation (Back et al., 2009). Further evidence for researchers' faith in social network sites as a source of reliable information about the world comes from the sheer volume of studies that draw on social networking as a principal source of data. A selection of these studies is discussed in the next section.

H. Summary of emergent themes

In concluding this chapter summary of the themes that have emerged from the literature is presented. It has been shown that a significant body of material has been written about the career progression of senior leaders. Attempts by authors to systematise this progression have often tended to view progression as occurring in neatly linear steps. Gronn's (1993) take on progression offers advantages over alternative models, though, in the context of this study, because of its emphasis on the importance of 'socialisation agencies' and other 'reference groups' in leader formation. It is therefore adopted as the framework around which this study is built.

Discussion followed on the changing nature of professional development in schools and elsewhere. It was shown that many authors point to the importance of informality and to the relative ineffectiveness of many traditional modes of professional instruction. The work of authors such as Field (2011) and Bush and Glover (2004) was discussed to highlight some of the key characteristics of professional development, traditional or not, that is seen to work. Many leaders were shown to have turned to Twitter as a forum for furthering their knowledge and engaging in professional dialogue. Though it was acknowledged adoption is highly variable, recent and insufficiently researched or understood.

There followed from this an explanation of the mechanics of Twitter allied to a discussion of the emerging research on the psychology of social networking. Social networking was shown to have addictive qualities, but also to have an ability to spread ideas and therefore wield professional influence. The inchoate research into how school leaders adopt, and are affected by, social networking was also discussed. The few authors working in this field were shown to agree that a hierarchy of adoption exists.

Finally, discussion ensued in which the mechanics of pre-existing social media research was explored. Here too, the field is new. Disagreement exists within the academy as to the best methods to use in order to gain heuristic value from such research.

I. Emerging theoretical framework

In Chapter 1 four research questions were presented in order to explore the various issues surrounding the use of Twitter by senior leaders:

1. Why are certain senior leaders using Twitter?
2. How deep and broad are the Twitter networks of the sampled school leaders?
3. What are the ways in which Twitter has contributed to school leaders' professional development and career progression?
4. How might Twitter affect the professional journeys of school leaders and so impact on the on-going usefulness of Gronn's (1993) career progression model?

These research questions emerged in response to some identified gaps in the current body of literature in this field. As we have seen, little published work exists on how school leaders are using social media in their daily workflows. Equally, whilst the social aspects of learning are well documented (see page 63), quantitative measures into the depth and breadth of these networks is not readily available.

The meta-data afforded by social platforms such as Twitter provides a rich - and as yet under-exploited - means for addressing the difficulty educational researchers have had in the past in using mathematical language to describe human social interaction. In contrast, work on professional development and leaders' career journeys is deep and extensive. So too, there is plenty of material in the literature that focuses on the various aspects of social media use in schools and elsewhere, much of it that relates directly to micro-blogging of the sort found on Twitter. But in so far as this conspectus of the literature is concerned, very few authors have started to explore the links between social media use and the various stages in the professional lives of school leaders.

The research questions framed here are designed to explore the interface between social media use and career progression. They deal with the present and look to the future and are

couched in terms that will allow for a full and frank investigation into the ways social media use has woven its way into the lives of many leaders.

Gronn's model of leadership development has been introduced as the lens through which these questions will be addressed. Building on the work of Gronn - whose model pre-dates the advent of social media - a varied body of research, from across the world, has been reviewed. The importance of Twitter in the lives of many senior leaders has been underlined. Gronn's model placing, as it does, so much emphasis on the social, cultural and historic background that shapes the career journeys of leaders, provides an enduringly useful framework through which to study the lives of leaders at various stages in their careers. Particular focus is paid in this study to leaders in the 'accession' and 'incumbency' phases identified by Gronn in his model (see Figure 10 on page 40) and to the role social media plays in influencing these transitions.

Twitter introduces a new dynamic to the arc of progression of many modern leaders' careers. No longer are leaders so isolated, only able to interact with those in their immediate milieu. As such, there may be significant ways in which the vertical, ladder-like progression envisaged in Gronn's schema may have started to break down. Indeed, Gronn (1999, p. 30) himself – perhaps presciently – acknowledged that 'Silicon-Valley-style' disruption might turn things on their head, or at least alter them significantly. There may also be significant ways in which the sense of self that leaders possess, and the manner in which they project themselves to the outside world, need to be reconceptualised in the light of the changes wrought by social media. Whether the theoretical framework envisaged by Gronn needs tweaking or whole-sale redesign is an issue that is discussed in later chapters.

In the next section of this thesis – the Research Design chapter – the detail of the research methods employed in the study is laid out. Issues to do with reliability, triangulation and ethics are also discussed, as is my own philosophical standpoint on the nature of truth and epistemology.

J. Executive Summary

J.1. Salient points

1. A detailed and organised review of the literature as it relates to Twitter, social media and professional development was conducted.
2. Professional development was discussed through the lens of several career trajectory models.
3. Gronn's career trajectory model, with its emphasis on the social element of leadership progression, is particularly suited to this study.
4. It was shown that many leaders in schools are already using Twitter extensively.
5. The social, peer-to-peer aspect of professional development was shown to have a wide following. In some cases it was shown to be superseding more traditional modes of training delivery.
6. Social media was shown to be addressing leaders' preference for non-traditional forms of instruction.
7. Social media was shown to be fulfilling many of the criteria laid down by authors such as Field (2011) as foundational to effective professional development, whether or not mediated via the internet.
8. Both social media and social media research was shown to have its detractors.
9. A range of studies preceding this one were discussed both within and without education.

J.2. Implications

1. Whilst there is a large and increasing body of literature on social media use in schools, little work has been done on the effect that social media use has on the career trajectories of leaders, or on the nature and efficacy of their professional development. This study aims to fill the gap.
2. The extent to which Gronn's model accurately reflects the experience of senior leaders in a social media age – whether its insights are more or less pertinent now

than they were at the time of the model's creation – is an important matter for consideration.

A. Introduction

Having discussed the existing literature and laid out the rationale for this thesis, along with its attendant research questions, this chapter focusses on the research design adopted for the study. The philosophical stance which underpins the research is set out. This is followed by an explanation of the methodology and thence the specific methods that have been adopted in order generate data useful in answering the research questions. Lastly, issues of ethics, sample size, validity and reliability are addressed.

B. Philosophical position

Before explaining the detail behind the research methods employed in this study it is necessary briefly to dip into a discussion about truth – about how we know what we know. This will involve a declaration of, and justification for, my own philosophical position in the debates that fall under the umbrella of *epistemology* – the study of knowledge.

For a very long time disagreement has raged within the social sciences between those declaring themselves as having a positivist world view and those declaring themselves as interpretivists. The two camps are often seen as mutually exclusive, holding epistemologically incompatible ideas about what constitutes truth and validity. Protagonists in the debate have strongly held positions that can seem incomprehensible to those whose background is in the physical sciences.

My own training as a geographer exposed me as an undergraduate to the debate and to the zeal with which geographers - past and present - held to their version of the truth. In some cases opinions were so strongly held that it was felt entirely appropriate to ridicule those holding alternative viewpoints. Indeed, the strength of sentiment on both sides - positivist versus interpretivist - is neatly caricatured in Figure 27. Here geographers from both sides of the philosophical spectrum are parodied; the epistemological divide delimited by the River Styx being replicated in other branches of social science and, of course, in university departments of education.

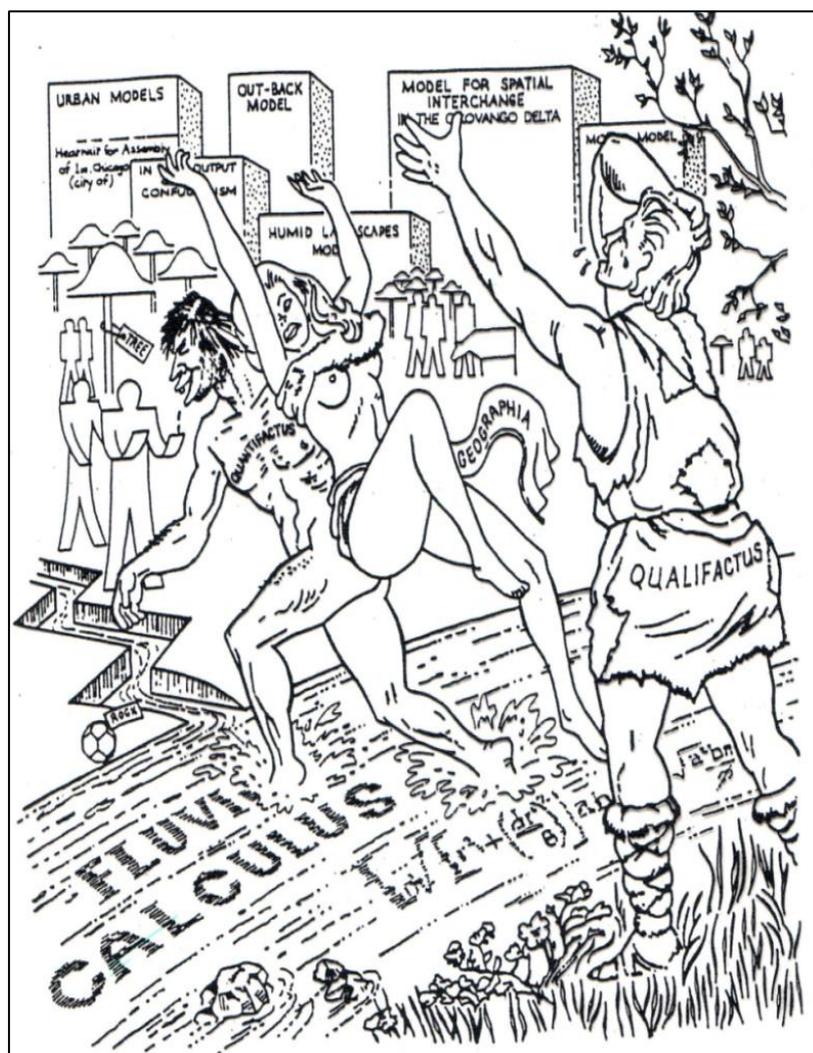


Figure 27, The rape of Geographia illustrating the split within the geographical community between positivists and interpretivists (Curry, 1967, p. 2).

Howe (1988, p. 10) summarises the purported dichotomy powerfully, and is worth quoting at length:

One paradigm is positivism: the view that scientific knowledge is the paragon of rationality; that scientific knowledge must be free of metaphysics, that is, that it must be based on pure observation that is free of the interests, values, purposes, and psychological schemata of individuals; and that anything that deserves the name "knowledge," including social science, of course, must measure up to these standards. The other paradigm is interpretivism: the view that, at least as far as the social sciences are concerned, meta-physics (in the form of human intentions, beliefs, and so forth) cannot be eliminated; observation cannot be pure in the sense of altogether excluding interests, values, purposes, and psychological schemata; and that investigation must employ empathic understanding (as opposed to the aims of explanation, prediction, and control that characterize the positivistic viewpoint). The positivist and interpretivist paradigms are incompatible; the positivist paradigm supports quantitative methods, and the interpretivist paradigm supports qualitative methods. Therefore, quantitative and qualitative methods are, despite the appearance that research practice might give, incompatible.

But Howe, and a succession of authors after him, reject this binary division. Indeed, researchers who accept the intellectual coherence of using a selection of methods are seen not only as 'pragmatic' but as 'philosophically sound' (Johnson et al., 2007, p. 125). Gorard (2013, online) meanwhile rails against those 'contaminated by the nonsense peddled on mainstream methods courses' in which research students are told they must adopt one or other of the two commonly presented paradigms. Howe goes as far as to suggest that those who do allow their research to be governed by a particular epistemology – positivist or interpretivist – are placing unnecessary restrictions on what they can legitimately look for in their research. In this respect they are undermining the value of their research by falling foul of the 'streetlight effect' as explained by Kaplan (1964, p. 11) in his parable about the drunkard's search:

There is a story of a drunkard searching under a street lamp for his house key, which he had dropped some distance away. Asked why he didn't look where he had dropped it, he replied, "It's lighter here!"

Keen to avoid falling into a similar trap in this study I therefore make no attempt to nail my colours to either the positivist or interpretivist masts. I acknowledge that there are some things that can be known with unwavering certainty particularly, though not exclusively, in the field of mathematics (two plus two will always equal 4, no matter how much a dyed-in-the-wool interpretivist might protest otherwise). Equally, there are certain phenomena observable in the world, some of which are likely to be uncovered in this study, which do not lend themselves to the language or tools of the positivist: they are temporal, non-repeatable, irrational and/or subjective in nature. To divide fields of human knowledge into two irreconcilable camps is, in my view, mischievous and dishonest. In this study, therefore, a dogmatic view is avoided and a foot is kept, to borrow the metaphor from Figure 27, on both sides of the River Styx.

In the light of this what follows is most accurately referred to as a 'mixed methods' (Johnson et al., 2007) study, drawing, as it does, on the best of both the interpretivist and positivist traditions. It is worth stressing here that I share Gorard's dislike of '-isms' and am reluctant to present mixed methods as being the third, alternative, paradigm within which this study sits. This is because, as Gorard (2013, p. 13) points out, it adds to the confusion 'by apparently confirming the validity of the first two, instead of simply blowing them all away and not mentioning any of them'. Essentially, then, if there is a philosophical underpinning to this study, it is one of pragmatism where a simple approach of 'what works' is adopted in the research design - *even if this defies placement within a philosophical paradigm*. Elements of what follows will have a phenomenological flavour, whilst other elements will have a positivist one. Because of the nature of the study material, still others will not fit neatly into either of these categories.

C. Wider framework

Several authors working in the field of research design have important comments to make about the different types of knowledge that can be sought by researchers in their enquiries. Habermas, for example, identifies knowledge as falling into one of three possible categories:

Type of knowledge	Explanation
Technical	Focuses on tasks and is concerned with the analysis of problems and of finding solutions to them. Emphasizes experiments and replicability in an attempt to produce theories, models and laws. A positivist stance.
Practical	Focuses on people and relationships. An understanding of actions and their attendant relationships is sought. An interpretivist stance.
Emancipatory	Focuses on promoting critical reflection and action to remedy injustice or to emancipate.

Table 9, Habermas's three categories of cognitive interest (adapted from an unpublished summary produced by Broughton, 2013, p. 76).

Since Habermas devised this schema in 1971, improvements in computing power have conflated these realms of research in ways he could not have envisaged. It is now perfectly possible, for example, to adopt an analytical approach that might sit best in the technical domain and use it to research areas of human endeavour that might previously have been seen as the sole preserve of the practical domain.

Habermas - still alive today at the grand old age of 85 - could not have foreseen at the time he first devised his framework, the blurring of the boundaries between his categories of knowledge that technological advancements would precipitate. In this study, for example, where one of the principal research tools involves the mining of data from Twitter, the type of knowledge being sought is not so easily compartmentalised.

A more recent (2002) attempt to delimit the types of knowledge that can be generated by studies such as this was carried out by Ribbins and Gunter. Their work, unlike Habermas's, has the added advantage of relating directly to studies within the field of school leadership.

Ribbins and Gunter identify five 'knowledge domains' within which studies may fall, as in Table 10:

Province	Description
Conceptual	Concerned with issues of ontology and epistemology and with conceptual classification.
Humanistic	Seek to gather and theorize from the experiences and biographies of those who are leaders and managers and those who are managed and led.
Critical	Concerned with revealing and emancipating practitioners from the injustices and oppression of the established power structures.
Evaluative	Concerned with measuring the impact of leadership and its effectiveness at micro, meso and macro levels of interaction.
Instrumental	Seek to provide leaders and others with effective strategies and tactics to deliver organizational and system level goals.

Table 10, Knowledge domains into which studies of school leadership may fall (Ribbins and Gunter, 2002, p. 262).

This study, seeking as it does to gather information both directly from Twitter and in the form of face-to-face interviews, thus falls most neatly within the humanistic domain in its attempt to 'gather and theorise from the experiences and biographies of those who are leaders...' (Ribbins and Gunter (2002, p. 375).

Now that this study has been located within its wider philosophical framework, with the knowledge domain it occupies clearly identified, there follows a discussion of the research methodology to be used, followed by detail on the mechanics of the methods themselves.

D. Research methodology

The terms method and methodology are often conflated, with methodology often being used as 'a pretentious substitute for the word method' (Creswell, 1998, p. 20). Here though a distinction is made between the two. In discussing *methodology* I am referring to the discipline or body of knowledge that uses the methods (the specific techniques and processes) that I will later describe. Thus methodology here refers to the design process for carrying out research and its epistemological underpinnings not to the detail of the methods themselves.

Whilst this study has resisted alignment with one or other of the *-isms* that researchers often invoke (see the discussion starting on page 106) it does fall more easily under a methodological tradition. Much of this study draws on ethnographic methodology in that it 'considers a bounded population and enquires how they go about their day-to-day lives' (Kinash, 2013, online) - in this case on Twitter. Ethnographic research has several valuable attributes that make the methodology attractive to researchers and an appropriate methodology to use as the theoretical underpinning of this study:

1. It allows the researcher to gather 'live' data from 'live' situations
2. It allows the researcher to gather first hand *in situ* data
3. It enables the researcher to explore the context of observations and findings
4. It allows for open-ended inductive research
5. It enables the researcher to see things that might otherwise be missed, or that might not be freely talked about in other settings and situations (Cohen et al., 2000, p. 92)

Whereas in the past, of course, the 'bounded population' envisaged by ethnographers was delimited by the boundaries of regional or national geography, the internet has meant that this is no longer the case.

The same attributes that made ethnographic methodology such a compelling means of uncovering 'social meanings in ordinary activities' (Brewer, 2010, p. 10) also lend themselves to the study of online meanings. A corollary of this is that ethnographers have had to refine and update their techniques. This has led to the development of a new methodological subset within ethnography often called netnography (Kozinets, 1998). Netnography, as originally defined by Kozinets (1998, p. 366), was 'an interpretive method to investigate the consumer behaviour of cultures and communities present on the internet'. It has since been employed in other disciplines: sociology, economics and management, though its use in 'educational research with online educational communities is still quite rare' (Kulavuz-Onal and Vasquez, 2013, p. 225).

Its rarity as a methodology in educational research is likely to be short lived, however, as its power and potential become clear. Kozinets (2010) notes that netnography is faster, simpler and less expensive than ethnography. Added to this, the data gleaned by netnographic studies may be more representative and robust.

According to Kozinets, the methods used by netnographers are more naturalistic and unobtrusive than focus groups, interviews or other tried-and-tested methods in the arsenals of traditional ethnographers. Bearing all this in mind, this study sits squarely within the nascent netnographic methodology. In its use of the internet as a primary research tool netnography has an appeal to for 'both quantitative and qualitative' researchers (Nancarrow et al., 2001, p. 137). In this study the netnographic methodology is used to divine meaning from online conversation. Both quantitative and qualitative content analysis are therefore employed. As Langer et al. (2005, p. 194) explain:

...the first step in [netnographic] content analysis is to break down a text into countable units, and then to produce statistical computations in relation to categories that are defined by the analyst.

This quantitative analysis is supplemented by qualitative processes lest it 'neglect what might be important aspects of the textual meaning' (Langer et al., 2005, p. 194). Thus qualitative analysis focusses on:

...the ways of expression in a text [...] the context of the text, power relations in a text or different perspective in a text (2005, p. 194).

In essence, netnographic methodology unashamedly uses both qualitative and quantitative methods. In this sense it sits well with a mixed methods study.

E. Research method

The principal research method employed in netnographic studies is participant observation. Kozinets (2010) is at pains to point out that careful selection of an online community is necessary before the detail of the method is planned. Twitter, and the senior leader communities on it, meets such requirements handsomely:

In order to be effective online netnographic studies should focus on researching online communities that are:

1. relevant, they relate to your research focus and question(s)
2. active, they have recent and regular communications
3. interactive, they have a flow of communications between participants
4. substantial, they have a critical mass of communicators and an energetic feel
5. heterogeneous, they have a number of different participants, and are data-rich, offering detailed or descriptive data (p. 89)

Figure 28, The criteria for successful netnographic studies (Kozinets, 2010, p. 89).

Additionally, as Kozinets (2010) points out, in netnographic studies, unlike in other participant observation strategies, observation is *conducted entirely online* through computer-mediated technologies (in the case of this study, Twitter).

Despite the fact that the whole focus of this study is on the dynamics of an online community of school leaders, there may be some apprehension about restricting data collection solely to the virtual world: will this render the study one-dimensional, for example? In anticipation of these concerns, this study makes use of a further, real-world data collection method. It employs a method used in more traditional ethnographic studies – the semi-structured interview.

In this way, the addition of a second method allows for a degree of triangulation and supplies ‘thick descriptions’ (Morrison 1993, p 88) of the sort that Twitter’s 140 character limit precludes. The two methods are described in what follows. Before they are described, though, I present a timeline showing the sequence that each element of the research took in relation to the participants:

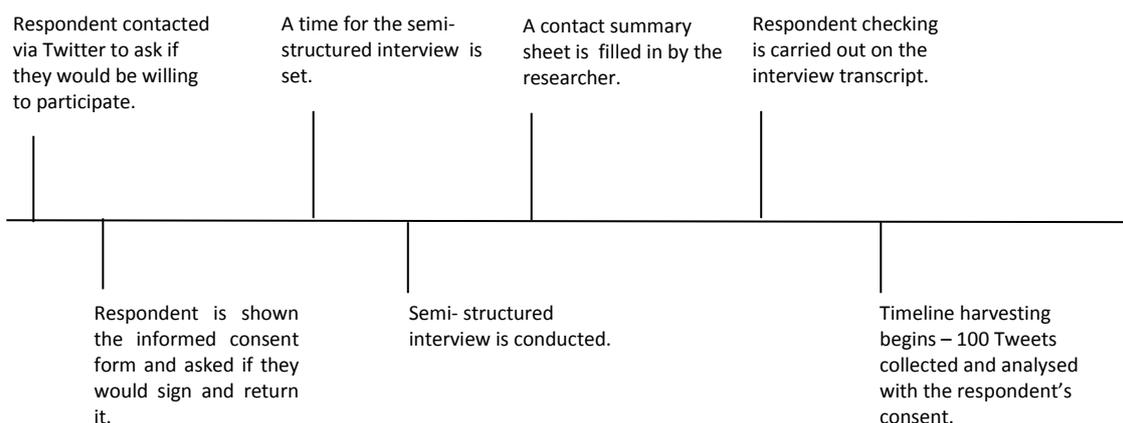


Figure 29, A timeline showing the research activities undertaken.

E.1. Method 1: Timeline content analysis

Timeline content analysis, a netnographic method, has much in common with the more traditional method of non-participant observation described by ethnographers like LeCompte, Millroy and Preissle (1993). A huge amount of data can be collected, particularly where the researcher is immersed in the context for some time, allowing for the generation of detailed descriptions. Such descriptions are data-rich and allow researchers to answer their research questions with a level of detail and confidence that would not attend more perfunctory data collection methods. The validity of findings is therefore enhanced in the sense that reliance on the researcher’s own inferences is kept to a minimum because so much first hand evidence abounds. LeCompte, Millroy and Preissle list some of the data that can be collected using observation as a method (see Figure 30). Given that this list is not exhaustive, its length is a testament to the potential power of this method as a means of gleaning information.

1. Who is in the group/scene/activity – who is taking part?
2. How many people are there, their identities and their characteristics?
3. How do participants come to be members of the group/event/activity?
4. What is taking place?
5. How routine, regular, patterned, irregular and repetitive are the behaviours observed?
6. What resources are being used in the scene?
7. How are activities being described, justified, explained, organized, labelled?
8. How do different participants behave towards each other?
9. What are the statuses and roles of the participants?
10. Who is making decisions, and for whom?
11. What is being said, and by whom?
12. What is being discussed frequently/infrequently?
13. What appear to be the significant issues that are being discussed?
14. What non-verbal communication is taking place?
15. Who is talking and who is listening?
16. Where does the event take place?
17. When does the event take place?
18. How long does the event take?
19. How is time used in the event?
20. How are the individual elements of the event connected?
21. How are change and stability managed?
22. What rules govern the social organization of, and behaviour in, the event?
23. Why is this event occurring, and occurring in the way that it is?
24. What meanings are participants attributing to what is happening?
25. What are the history, goals and values of the group in question?

Figure 30, Questions to answer during the course of a piece of observation research (LeCompte, Millroy & Preissle, 1993, pp. 199-200).

Thus Twitter content analysis is employed in this study as a means of beginning to answer the research questions (listed on page 15). Following the example of Risser (2013), a coding scheme was adopted. Borrowing heavily from the method adopted by Elias (2012) one

hundred Tweets were collected from each participant at random using a proprietary tool known as TwDocs²⁴. The process played out as follows:

1. Contact was made, via Twitter, with a selection of senior leaders in school. Initially these leaders were found using searches for terms like *head teacher, leader, teacher*. As the study progressed I found that the sample snowballed with more and more participants helping me make connections with other school leaders who had a Twitter presence. All the while a conscious effort was made to ensure that the sample included individuals representing a diversity of genders, cultures, years of experience and types of school. In this sense the sample, which in its entirety included 21 school leaders, was a stratified purposeful sample of the type envisaged by Creswell (2007). As Creswell points out, selection of individuals in purposeful samples involves choosing participants who 'may be convenient to study because he or she is available, a politically important figure who attracts attention or is marginalized, or a typical, ordinary person' (2007, p. 79).
2. A specific focus was made of the Twitter accounts of school leaders themselves, rather than those of their organisation. This was done by looking for elements to the accounts like a facial avatar, a personal name associated to the account etc. Users were be found by typing names and job titles (head teacher/headmaster etc.) into the search facility in Twitter and by scouring the followers of known head teachers and other school leaders.
3. Those school leaders with Twitter accounts were added to a 'list' in TweetDeck to allow for close communication between the researcher and participants whilst the study was in progress.²⁵

²⁴ TwDocs is a tool that allows users to import a stream of Tweets into a .csv file. Once stored as a .csv file the Tweets are then easy to manipulate and analyse in whatever way is desired.

²⁵ TweetDeck is a proprietary piece of software that allows users to customise their Twitter feeds using search terms, specific accounts or lists. In this context 'list' is a specialist term that refers to a group of Twitter account feeds specified by the user. A user can add individuals he or she would like to follow to a list and so only be fed content created by the members of the list.

4. Prospective participants were followed and then @ messaged to gain their attention. They were sent an electronic copy of the informed consent form (see Appendix 2, page 248) and asked to digitally sign and return it to indicate their willingness to participate. A meeting was then arranged, either face-to-face or online (often using Google Hangouts or Skype), to carry out a semi-structured interview with them (see Appendix 1, page 247).
5. The one hundred Tweets collected from each participant via TwDocs were coded using the schema below:

Conversation code	Example Tweet
Request for information	Does anyone know where I can get an ISI lesson obs proforma?
Sharing of news	Have you seen this: http://goo.gl/wrNKc ? #ukedchat
Sharing of resources	This might be useful for some of you: http://goo.gl/dnFt9 #teachingresource
Showing appreciation	Thanks – see you tomorrow
Showing displeasure	Michael Wilshaw doesn't know what he's talking about #whatanutter
Responding to others	@headguruteacher thanks for that RT

Table 11, The coding scheme to be used. This is based on one designed by Risser (2013).

This coding system was settled upon following Miles and Huberman's advice on the identification of suitable code categories:

The challenge is to be explicitly mindful of the purposes of your study and of the conceptual lenses you are training on it – while allowing yourself to be open to and re-educated by things you didn't know about or expect to find (1994, p. 56).

In the event the coding categories used by Risser proved their worth, with no need for modification or adaption.

Additional data, such as followers, number of Tweets and retweets were also recorded (see Table 14 on page 136). Each Tweet was also be categorised as being professional or personal in content to shed further light on how the participants' accounts were being used.

In order to ensure that the categories used for coding (Table 11) were discrete and returned data of heuristic value, the study was piloted over a short period first. This was done with a view that it would ‘iron out any problems’ (Cohen et al., 2000, p. 306) and so reinforce the validity of the study (see more detailed discussion of validity starting on page 122).

Studies of this kind often employ teams of people to code responses and thus run into issues of inter-rater reliability. Such problems were neatly circumvented in this study by all the coding being carried out by the researcher himself.

As the timeline of the research activities shows (Figure 29) timeline content analysis was undertaken *after* the semi-structured interview for each respondent. This allowed for proper explanation of the process to take place face-to-face so that each respondent was clear as to what they were letting themselves in for. Additionally, in carrying out the harvesting of tweets after the interviews it was possible to add some meat to the bones of the interviewees accounts. As will be seen in the next chapter, sometimes tweets confirmed or reinforced something a respondent had said; sometimes a timeline showed a use of Twitter that had not be drawn out in interview. Either way, the one method always complemented the other and resulted in the sort of ‘thick descriptions’ Morrison (1993, p 88) approves of.

E.2. Method 2: Semi-structured interviews

The second method of data collection in this study involved the use of a semi-structured interview to elicit further information from participants about their use of Twitter and their attitudes to the platform (see Appendix 1 on page 247).

Whilst the data mined using the method described provided answers to research questions 1 and 2 (see page 15), and respondents were likely to get irritated if questions were asked about information that is publicly available anyway, research questions 3 and 4 required more in-depth exploration of the sort that only face-to-face interviews can provide.

Twenty-one school leaders, all with active Twitter accounts, were selected using purposeful stratified sampling. A pilot interview was conducted with the head teacher in the author's own school (himself a regular Twitter user) to establish whether the questions devised produced meaningful responses, directed towards answering the research questions. The pilot interview also identified any omissions and opportunities to extend or alter the questions posed. Following this process the necessary adjustments were made to the interview prompts (see Appendix 3 on page 253 for the final set of interview questions that were used). Interviews were conducted face-to-face using Skype or Google Hangouts and usually lasted between 45 minutes and an hour.

The voice files were recorded using Evernote™ and were then transcribed as Google documents for analysis (see Appendix 4 on page 254 by way of example).

The semi-structured interview as a method of data collection in a study of this type is a superb fit. As Denscombe (2003) describes this method of data collection has several advantages:

The strengths of semi-structured interviews as a method of data collection

1. Information can be gathered in depth and detail. Issues can be pursued over a relatively lengthy period.
2. Valuable insights can be gained due to the depth of information gathered.
3. Only simple skills and equipment are required.
4. Data is based on respondents' priorities, opinions and ideas.
5. There is flexibility in the method such that lines of enquiry can be developed during the course of the interview.
6. Validity can be established as the data is collected.
7. A higher response rate is assured than in other methods of data collection because interviews are timetabled at mutually convenient times and locations.
8. Respondents often enjoy the experience of being interviewed and of sharing their expertise and insights.

Figure 31, The advantages of interview use in research (Denscombe, 2003).

The data generated by the semi-structured interview process was distilled in a number of ways:

- a. In the first instance, in an effort to capture the key themes emerging from each interview, a contact summary sheet, of the type suggested by Miles and Huberman (1994), was filled in. In line with their advice, the contact summary sheet (see Appendix 6 on page 275) was completed immediately following the completion of each interview in order to reduce the chance of important information being forgotten or omitted.

- b. Secondly interviews were transcribed into a central Google document. The comment facility in Google Docs was then employed to attach codes to chunks of text removing the need for the scissors and file cards advocated by Miles and Huberman. In keeping with their advice though a provisional 'start list' of codes (1994, p. 58) was devised before interviewing began. As they predicted, the codes initially adopted in the 'start list' needed adapting as the research progressed:

Researchers with start lists know that codes will change; there is more going on out there than our initial frames have dreamed of... (1994, p. 61).

The number of different codes was kept deliberately brief to minimise the possibility of confusion. The codes were focussed very clearly on the issues raised by the research questions. In this way the data generated was kept to manageable proportions. The codes used are shown in Appendix 7 on page 276.

Having established the rationale behind the use of each data collection method and given detail on the way each was employed it is now necessary to consider the validity and reliability of the data that emerged.

E.3. Research validity

Needless to say, with an investigation of this size and scope, great care has been taken to ensure that the findings are meaningful and make a positive contribution to the corpus of knowledge about school leadership. In this vein, consideration is given here to the extent to which this study is valid. Validity refers to the degree to which an investigation measures 'what it purports to measure' and reflects a 'recognisable reality' for those who read it (Parlett and Hamilton (1972, p. 12). Other authorities in the field make a distinction between *internal* and *external* validity, where internal validity refers to the extent to which research findings accurately represent the focus of the research. External validity, by contrast, refers to the extent to which the findings are generalizable to other contexts (Thomas, 2009).

In this study internal validity was maximised by the use of piloting and triangulation. Both the methods described in the previous section were properly piloted to ensure that they did indeed measure ‘what they purport to measure’ (Parlett and Hamilton, 1972, p. 12). Additionally, by selecting two complementary but distinct methods of data collection (Twitter content analysis and semi-structured interviews) a degree of triangulation was achieved. A further strand of evidence, available in the case of many interviewees – their personal reflections published on their blogs, adds another means by which triangulation was achieved. Such literature, not formally published, and sometimes referred to as ‘grey literature’ has significant things to offer social science researchers. As Hookway (2008, pp. 92-93) remarks in reference to blogs:

...they provide a publicly available, low cost and instantaneous technique for collecting substantial amounts of data. [] The anonymity of the online context also means that bloggers may be relatively unselfconscious about what they write since they remain hidden from view. [] Moreover the archived nature of blogs makes them amenable to examining social processes over time...

The claims made by interviewees about their Twitter use were therefore easily verifiable with reference to their recorded Twitter stream and, in many cases, through reference to confirmatory blog reflections. Indeed, blog reflections may be an even more reliable source of information than are face-to-face interviews because, as Goodwin (2012, p. 144) remarks: ‘they are not contaminated by the predating interest of the researcher’. Thus where Bassey (1999, p. 75) asks the following two questions of studies purporting to be internally valid:

- a. *has there been persistent observation of the emerging issues?*
- b. *have raw data been adequately checked with their sources?*

A resounding ‘yes’ is the response to each question in reference to this study.

External validity is more problematic, however. Whilst it is hoped that this study makes innovative use of new data collection methods that other researchers could adopt as their own, it is less certain that the findings will be generalizable in other contexts. The study

sample is deliberately small and reflects a relatively narrow cross-section of the educational establishment. Equally, the pace of change online means that any findings are likely to be short-lived in their authority and impact. As Jones (1999, p. xiii) cautions:

Internet research is difficult. It is extremely difficult ... given the ever changing networks involved, the mutating software and hardware and the elastic definitions...

But making incremental contributions to the corpus of knowledge is what post-graduate research is all about. That the findings are likely to be ephemeral and quickly superseded does not fatally undermine the value of the research; nor (as the numerous references to papers several years, or even decades, old in this study illustrate) will the findings necessarily disappear into obscurity.

E.4. Research reliability

With issues of validity discussed, attention is now turned to the reliability of the proposed methods. Denscombe (2003, p. 300) describes reliable research methods as producing the 'same data time after time' on each occasion that they are used. Researchers must convince themselves, he continues, that:

'any variation in the results obtained [whilst] using the instrument is due entirely to variations in the thing being measured'.

This is a tough test.

As Cohen et al. (2000, p. 313) point out, some educational researchers have criticised participant observation studies as being 'subjective, biased, impressionistic, idiosyncratic and lacking in precise quantifiable measures'. But this criticism is harder to level at netnographic studies, such as this. In netnographic studies the data being analysed is in the public domain, recorded unswervingly in the original, such that it can be revisited by whomsoever wishes to.

But, whilst Twitter feeds and blog posts are a matter of public record and can be retrieved time and again by different researchers to produce identical data sets, similar confidence does not necessarily attend interviews, semi-structured or otherwise. There are well documented problems, for example, with interviews as a means of eliciting useful information about a given topic. One such problem manifests itself in the extent to which a researcher's own hinterland encroaches on how personal encounters play out. Researchers, being human, are affected by their 'situatedness' (Shields and Edwards, 2005), such that:

Every person brings to an encounter with a text or with another person his or her own ideas which influence significantly how a text or another person are understood ... these pre-established prejudices, constitute everything that we understand, not just what we know but how we know. Our prejudices are shaped by the tradition in which we are immersed from the moment of our birth (Shields and Edwards, 2005, p. 72).

The baggage that individuals bring to face-to-face encounters can result in bias being introduced even on the basis of things as seemingly irrelevant as personal appearance. It has been shown, for example, that jurors are less likely to convict attractive individuals than unattractive ones (Efran, 1974). And what can happen in a court of law can also, of course, happen in every-day encounters; with this type of bias being known as the halo effect. It is not feasible or practical to eliminate the possibility that such effects might introduce bias into the data collection process; nonetheless their impact can be attenuated in several important ways:

- In the first instance interviews were recorded using a digital recording device and transcribed word for word such that the dangers of reading things into responses and/or distortion of what was said by selective recall was greatly reduced. Further, interviewees were asked to read back through the interview transcript to confirm the accuracy or otherwise of the account (see the wording on the consent form found on page 248 in Appendix 2).
- The questions posed in the course of the interviews (see Appendix 1) were designed to be as open-ended as possible, so as not to lead interviewees in any particular direction through their responses. In this way the influence of the questioner was

reduced. The open-ended nature of the questions also allowed for interviewees to speak more freely and expansively on issues raised by the interviewer. This allowed for the serendipitous discovery of new perspectives and avenues of enquiry as the research progressed.

- Lastly, the majority of the interviews were carried out at the interviewees' own places of work or in their homes (either face-to-face or mediated by Skype or Google Hangouts). This strategy was designed to ensure that respondents felt comfortable, safe and thus were more inclined to be candid in their responses. By allowing plenty of time for the interviews (up to one hour) respondents were given the opportunity to speak at length, to extemporise and so generate a rich seam of material for analysis. Allowing sufficient time also reduced the possibility of the 'reactivity effects' Cohen (2000, p. 311) identifies as compromising some interviews. He describes situations where respondents, constrained by lack of time, do not have time to find their own voice and instead respond mainly to the presence of the interviewer rather than to the thoughts forming in their heads as questions are asked.

Problems of reliability are not just confined to the halo effect, however. Denscombe (2003) has pointed to the tension between realism and relativism within any study employing ethnographic (and by extension netnographic) methodologies. In order to obtain a high degree of reliability researchers may be tempted simply to record a dry, narrative account of their investigations. However, to do so would reduce their work to an 'atheoretical, non-analytic and non-critical' (2003, p. 94) account not worth the paper it was written on.

In order to draw meaning from findings researchers necessarily find themselves engaged in subjective judgements (relativism). In this study major cognitive leaps involving reading something into the oral statement or Tweet of an individual were always be referred back to the originator for clarification/confirmation. Indeed Twitter itself greatly facilitates this sort of respondent checking (see page 149 for an example of such checking in the context of this

study). Respondent checking in this way greatly increased the reliability of the findings and is a further element of the triangulation that bolsters confidence in the findings.

In critiques of other ethnographic studies, authors have observed other reliability problems that stem from:

1. The tendency for researchers to ignore extremes uncovered by their research and pay undue attention to values in the middle that fall between opposite poles (referred to as *central tendency*).
2. The tendency for researchers to accord greater significance to recently studied events than to ones studied longer ago (referred to as *recency effects* in the literature).
3. A phenomenon known as the *Hawthorne effect* whereby the subjects of a study (interviewees, or Twitter users etc.) modify their behaviour in response to the fact that they are being studied.

In this particular study each of these effects is mitigated by triangulation and by the fact that a physical written record of interactions, whether face-to-face or on Twitter, was kept.

E.5. Research sampling

This study employed a purposeful sampling strategy in order to obtain interviews with 21 senior leaders in schools. The criteria for selection criteria demanded that:

- a. The respondent must be on Twitter and be Tweeting regularly (in practice more than 20 times in the preceding month).
- b. The respondent must work in a school – either primary or secondary, or have recently done so (within the last 3 years) and be actively involved in the educational community.
- c. The respondent must hold a senior leadership position in his or her institution. Senior leadership was defined as any position at or above deputy head level (see the discussion of this definition on page 13). Many respondents were head teachers,

several were deputies and one was a governor. Twitter enabled complete disregard for national boundaries and so some respondents were senior leaders outside the UK (see Table 14 on page 136).

Several searches were conducted on Twitter using the following keywords to identify potential participants:

Table 12, Keywords used to identify potential interviewees on Twitter.

Teacher	Principal
Head teacher	School AND/OR Governor
Headmaster	Headmistress
Deputy	Leader

As it happens, the sample size snowballed impressively. Twitter itself, in the form of the short biographies users post about themselves, provided useful background information about respondents before the interviews themselves were conducted. By using these biographies it was easy to see, at a glance, whether a particular candidate fell into the right demographic for the study.

The final number of interviewees – 21 – represents a larger sample than that used by other the doctoral researchers in the field whose work I have encountered. Both Elias (2012) and Deyamport (2013) investigated fewer than ten subjects, for example. The sample was of sufficient size to ensure that the identification of common themes and categories was possible and valid, if tentative, conclusions could be drawn. The sample size in comparison to the total number of senior educators who are on Twitter is tiny however and so caution needs to be exercised in attempting to extrapolate the findings of this study to the wider educational community.

The interviews themselves were conducted between February 2014 and May 2015. The senior nature of the respondent's roles often meant that tying individuals down to a time and a date took some time. The majority of interviews were undertaken over Skype or using

Google Hangouts, with respondents having been sent the relevant consent form and a link to a blog post²⁶ explaining the nature of the study in good time beforehand.

E.6. Ethical considerations

In recognition of the fact that observation is not a 'morally neutral exercise' (Cohen et al., 2000, p. 316) consideration was given to the ethical guidelines outlined by the British Educational Research Association (BERA, 2011).

The BERA guidelines denote confidentiality and anonymity in the treatment of participants' data as being normative. Thus in all the semi-structured interviews participants were assured of the anonymity of their responses. Also, in line with BERA guidelines, respondents were to be asked to complete an informed consent form (see Appendix 2 on page 248). This consent form alerted participants of their right to:

- a. correct the written record
- b. withdraw at any stage
- c. maintain their confidentiality throughout

BERA guidelines make no mention of the suggested protocols for the mining of publicly available data from social networks like Twitter. Sitting and observing the action on Twitter from the side-lines could be viewed as a form of covert research which appears to fly in the face of the principles of informed consent. But Mitchell (1993) argues that there are some sources of knowledge that are legitimately in the public domain – Twitter, surely, falls into this category. Indeed the data held on Twitter is more akin to secondary data than to the primary data that the BERA guidelines circumscribe.

The most widely used primers on educational research methods - Cohen et al. (2007) or Denscombe (2003) - have nothing to say about the ethics of mining for data on social

²⁶ The blog post respondents were directed to, explaining the nature of the study, is here: <http://tjj.postach.io/post/leading-the-conversation-senior-leaders-use-of-Twitter>

networks. There is a gap in the literature here. In an article on this very issue Zimmer (2010, online) argues that although Tweets are in the public domain there is a reasonable expectation that:

...one's Tweet stream will be practically obscure within the thousands (if not millions) of Tweets similarly publicly viewable. Yes, the subject has consented to making her Tweets visible to those with the time and energy to seek her out.... But she did not automatically consent, I argue, to having her Tweet stream systematically followed, harvested, archived and mined by researchers.

But Zimmer goes on to quote several researchers who disagree with him, all anonymised in his article, having posted their comments on Facebook. One writes as follows:

Once Tweeted, a birdsong is gone forever. No deleting or taking back what's been broadcast to the world. If someone seeks privacy, they should seek another method of communication. If from the beginning, there was some kind of inherent expectation that Tweets were private messages, then the situation might be different. But the whole idea of Tweeting is to voluntarily publish or broadcast. It's different from, say, e-mailing or IMing.

Whilst another opines:

Tweets are publications. I think it's absurd to even consider [ethics board] review for anything dealing with things people have published.

And yet another:

...if the account holder Tweets to the general public, then it'd seem like there's no expectation of privacy so no consent would be necessary.

For these commentators at least Twitter is to be treated as an open forum on which people need to be aware that their comments are publicly available and over which they have therefore lost a degree of control.

To err on the side of caution, participants in this study, all of whom had their accounts added to the research list in TweetDeck, were @ messaged to further request their consent.

Consent was also sought at the time of interview and the process explained. Thus accusations of deception or covert surveillance were avoided. Additionally, respondents' Twitter handles have been altered in the text to fictitious ones. Their utterances are untraceable to all but the most determined inquisitor.

Where respondents possessed blogs these were also trawled for information that might be pertinent to the study. Following the advice of the education subject advisor in the library at the University of Birmingham blogs have been quoted, but individuals have been given fictitious names, and/or had their identity obscured by the use of language that describes their position and context without revealing their actual name.

F. Executive summary

F.1. Salient points

1. This study uses a pragmatic, mixed methods approach. The author resists labelling it as falling within any particular research paradigm.
2. A purposeful sampling strategy is employed to recruit 21 school leaders for the study.
3. Each of the leaders is interviewed using a structured interview proforma.
4. A random sample of 100 Tweets from each respondent were harvested.
5. Validity is ensured by respondent checking and, where available, through reference to the 'grey literature' outputs of respondents.

F.2. Implications

- A robust, transparent and easily repeatable research design is described. Thus, in so far as the research design is concerned, findings have solid provenance.

A. Introduction

In this chapter the research findings are documented and, where appropriate, enumerated. The chapter begins with an explanation of the principal characteristics of the participants. This is followed by an attempt to convey, with as much fidelity as practicable, the voices of the participants as they related to each of the research questions. The chapter is organised by research question and then, under each question, by the themes that emerged as the collective responses of the interviewees were sifted through.

It is worth discussing briefly here the provenance of the headings in this chapter. These headings form the basis of an emergent analytical framework. In devising them, Ryan's (2012, online) phrase 'the distillation of data for human judgement' was at the forefront of my thoughts. I was keen not to restrict myself to pre-defined themes. I could, for example, have looked for evidence of Field's (2011) components of high quality professional development (see page 49), and looked at whether Twitter provided respondents with professional development that was:

1. relevant
2. ongoing
3. frequent
4. reflective
5. evidence-based
6. collaborative
7. personalised

But I had concerns that to straight-jacket the findings in this way would be to negate the benefits of the loose inductive design that characterises much of the best qualitative research. As Miles and Huberman (1994, p. 17) point out:

[Many] social phenomenologists consider social processes to be too complex, too relative, too elusive or too exotic to be approached with explicit conceptual frames [...] They prefer a more loosely structured, emergent, inductively 'grounded' approach

to gathering data: the conceptual framework should emerge from the field in the course of the study...

And so it was that I let the themes in this chapter emerge organically as the research progressed, as I sought to uncover meaning from the data collected. This is not to suggest, however, that I did not impose *any* pre-structured order on my findings. I was mindful of Miles and Huberman's advice to try and find a balance between a loose initial framework and a more tightly structured one. I decided from the outset that it would be useful, for example, to organise the findings as they pertained to each research questions (detail on how these themselves emerged appears on page 101). The research questions therefore form the backbone running through the findings. Under each research questions themes emerged which I have signposted with further sub-headings.

After the emergent themes under each research question, the concluding section of this chapter sets the scene for a deeper discussion of the findings in the chapter which follows.

B. Characteristics of the study participants

In keeping with the method of participant selection outlined on page 117, in which participants were selected in a purposeful way, a wide selection of school leaders were approached and asked whether they would like to participate (in the event, as has been explained, a total of 21 school leaders took part). Quite deliberately, these leaders represented a diversity of genders, cultures, years of experience and types of school. Table 14 illustrates some of their key characteristics.

Twitter itself was often the medium used to approach study participants. As the research unfolded, the sample snowballed with participants themselves often suggesting other individuals who might be interested in taking part in the study. Occasionally public requests for help posted on Twitter also generated interest with tweeps volunteering themselves as potential study participants. Recruiting study participants in this way led to a pleasingly diverse group of educators electing to take part. Two respondents were from overseas and there was a good mix of leaders from both the maintained and independent sectors.

Equally, there was a mix of primary and secondary educators and one of the participants was a school governor. The definition of the term ‘school leader’ outlined in the introduction (see page 13), was therefore adhered to. In keeping with the title of the study, and with its focus on leadership in schools, potential interviewees volunteering themselves but working in tertiary education were politely declined. The fact that there were many of these volunteers is clear indication that there is scope in the future for research into the use of Twitter in this sector too.

The gender balance of participants was 12 male to 9 female, giving a relatively even mix of the sexes within the study sample. Given that a key characteristic of participants for the purposes of the study was that they were active on Twitter, using the social network itself as a means of recruiting interviewees proved an extremely useful way of connecting with the right demographic.

Following the example of other authors (Mackensie, 1999; Miles and Huberman, 1994, for example) who have sought to make sense of large volumes of qualitative data, now is a good opportunity to present some clarity as to the quantifiers used in describing the findings. Bearing in mind that there were 21 respondents in total, the following terms have attached to them specific meaning for the purposes of this chapter:

Term	Number of respondents
All	21
Most	11 or more
Many	5 to 10
Few	1 to 4
None	0

Table 13, Quantifiers used in this chapter and their associated meanings.

In instances where the use of these terms could lead to ambiguity the actual number of respondents is always recorded explicitly.

	Twitter handle	Gender	Sector	Job title	Number of followers	Number following	Number of Tweets	Age bracket	Location
1	@noad	M	Maintained, secondary	Deputy	90.7K	619	70.1K	40-45	London, UK
2	@watson	M	Independent, secondary	Deputy	819	1194	1708	40-45	Worcester, UK
3	@nancini	M	Independent, secondary	Head	273	174	1478	45-50	Eastbourne, UK
4	@hollingsworth	F	Independent, secondary (retired)	Head (retired)	5758	596	25.8K	50+	Nottingham, UK
5	@renwick	M	Maintained, secondary	Assistant head	25.6K	7045	58.8K	35-40	Bristol, UK
6	@mulholland	F	Maintained, secondary	Assistant head	10.6K	7886	46.5K	30-35	Portsmouth, UK
7	@morris	M	Independent, secondary	Head	367	132	800	40-45	Blackpool, UK
8	@coventry	M	Independent, secondary	Head	2170	146	2511	45-50	Berkhamsted, UK
9	@evans	M	Independent, primary	Deputy	7237	2482	22.3K	35-40	Tonbridge Wells, UK
10	@hicklin	M	Formally primary	Consultant	11.9K	90	46.3K	30-35	London, UK
11	@jones	F	Maintained, primary	Head	2136	1840	16.6K	35-40	Cumbria, UK
12	@bowd	F	Maintained, secondary	Deputy	2452	2315	13707	40-45	London, UK
13	@johnson	M	Maintained, secondary	Head	8012	232	11.3K	45-50	Liverpool, UK
14	@lowry	M	Independent, secondary	Head	225	272	517	20-45	Durham, UK
15	@derbridge	F	Maintained, secondary	Head	312	638	1781	40-45	Melton, UK
16	@cranston	F	Independent, secondary	Deputy	1376	723	2604	35-40	Alice Springs, Australia
17	@robb	F	Maintained, primary	Governor	1277	808	38.9K	40-45	London, UK
18	@lambkin	M	Maintained, secondary	Head	577	187	1492	40-45	Lancaster, UK
19	@parry	F	Maintained, FE	Principal	1106	183	6917	40-45	Lincoln, UK
20	@edwards	M	Maintained, primary	Assistant principal	2344	856	12.9K	30-35	Pennsylvania, USA
21	@holloway	F	Maintained, secondary	Assistant head	815	219	32.2K	35-40	London, UK

Table 14, Biographical summary of the study respondents.²⁷

²⁷ Twitter metrics are as they stood on April 15 2015.

C. Summary of findings

C.1. Research question 1: Why are certain senior leaders using Twitter?

As described in the Research Design chapter (see Method 1 on page 115) the most recent 100 Tweets appearing in the Twitter feed of each of the respondents were harvested using TwDocs. These Tweets were then coded according to the scheme laid out in Table 11 on page 118.

Analysis of respondents' Tweets using this method (see Table 15) yielded a rich seam of both quantitative and qualitative information about the way educators are using Twitter on a day-to-day basis. Much in the way that LeCompte, Millroy and Preissle (1993) predicted (see Figure 30), non-participant observation – in this case online – was valuable. Information gathered during interviews complemented this data and several themes emerged about which there was general agreement amongst respondents. These themes were reinforced by information gleaned from assorted respondent blog posts and from other grey sources of literature. In this way a high degree of triangulation proved possible, adding validity to the findings.

The themes that emerged relating to research question 1 fell broadly under these four headings:

1. Connectedness
2. Challenge
3. Social validation
4. Unresolved tensions

In what follows each of these themes is discussed in turn.

C.1.1. Connectedness

Table 15 shows clearly that most senior leaders use Twitter principally as a social tool – one for connecting with other educators and entering into discussions with them. In this sense

the study findings mirror the findings of authors such as Carpenter and Krutka (2014) that were discussed in the literature review chapter. In all but one case (that of @watson) the single biggest Tweet type for study participants was one that involved directly responding to others. On average, 59.8% of senior leaders' Tweets involved responding to others in some way – though the actual figure is higher than this because Tweets showing displeasure, appreciation or the sharing of news could often have been coded as responses to others too in many cases. In interviews this strong emphasis on interaction was reinforced. Many respondents reported having made personal friendships through Twitter. @mulholland, for example, reported that she had made 'genuine friends' through Twitter. In reference to some of her Twitter acquaintances, she explained:

'...we go and stay over each other's houses our children know each other'.

Other respondents related stories in which they had made personal connections with influential educators in a way that would not have been possible in the pre-Twitter age. One particularly powerful personal story was related by the only governor in the study, @robb. She described connecting through Twitter with Mike Cladingbowl, the National Director of Inspection Reform at OFSTED. As @robb explains, not only did Twitter play a role in setting up a face-to-face meeting, but also in crowd sourcing a series of questions from governors that were to be put to him:

[A] few months ago Mike Cladingbowl had Tweeted that he would be arranging seminars in order to meet personally with people working in schools and exchange ideas/thoughts. I asked if governors could come along too and Mike replied that he was very happy to talk with governors and had done so in the past... Once the date for the meeting had been confirmed, I asked governors on Twitter if there were any questions they wanted me to ask on their behalf (@robb, 2014, online).

Time and again respondents told similar stories in which they explained how Twitter had enabled them to connect with decision makers and thought leaders in education as well as with other educators carrying out similar roles.

One of the respondents, @parry, related how, in addition to her full-time role as a head teacher, she was employed as an OFSTED inspector. She reported finding out about new initiatives from OFSTED via her Twitter feed first, rather than via more conventional means. Twitter, she argued, gave her the edge over leaders not on the platform because the breaking news in education was often discussed on Twitter before it made its way into the mainstream media. Like many of the respondents, she had got into the habit of checking her Twitter feed early in the morning so that she was up to speed with the latest educational news before starting work for the day.

In a further powerful illustration of the power of Twitter to connect @hollingsworth described attending conferences and meeting teachers she'd connected with on Twitter, but never seen face-to-face. She described, with evident delight, such meetings as 'reunions with people you've never met before'. This turn of phrase mirrors the sentiments shared by many respondents: that Twitter was a way of breaking the ice with educators you might otherwise pass by at a conference without so much as an acknowledgement.

Twitter gave these leaders a shared experience and, in so doing, gave them a pretext to connect, to introduce themselves and form new friendships. As a result, some of the loneliness and isolation often reported by senior leaders (and mentioned by Gronn in his account of leaders' experiences) was diminished. @parry was particularly forthcoming in explaining how Twitter had helped her develop during the early stages of her headship. As she explained in the closing stages of her interview:

I was asked about loneliness in interview but I said: 'No, it's not a big deal'. But I've found that it is a very lonely job: it's the loneliness of decision making...I've become friends with people through Twitter. I've got people I can ring and can talk to and equally I can DM them quickly - that has been invaluable. There are lots of people who I wouldn't have got to know as well as I do if it hadn't been for Twitter.

The power of Twitter to provide answers, resources and a shared sense of purpose was also a strong theme that emerged from respondent interviews. Many respondents commented on the fact that Twitter's mediation via the internet, with protagonists safely positioned

behind their computer screens, encouraged them to be more open and honest than they might otherwise have been. Ironically, despite the very public nature of the medium, being at one remove from their followership emboldened them to expose more of themselves, to be more candid, to be more willing to ask for help when they felt in need of it. Note, for example, in Table 15, that 70% of the respondent cohort asked direct questions of other users whilst their timelines were under scrutiny.

One respondent related how she had recently posted a Tweet asking for help finding a government document that had been removed from its original source. Her request was quickly responded to by a fellow tweep sending her the required link. On other occasions respondents' timelines showed evidence of them using Twitter to garner opinions on educational issues, as this Tweet (which elicited well over 30 responses) in @evans's timeline illustrates:

Secondary teachers: curious – what subjects do you set in Y7? How do you decide the sets?

@johnson was particularly effusive about the speed with which he, as the head of a large secondary school, received responses to questions he posed on Twitter. And in a similar vein, he was impressed with the kindness and generosity that Twitter seems to incubate, even when the interlocutors are strangers:

I've never met most of these people before, and yet some of them never seem to be off Twitter. They can't give you enough of their time. It's amazing.

Whilst face-to-face meetings of the sort described by @robb were not uncommon, a larger proportion of the relationships and connections arrived at through Twitter remained exclusively online. This looser level of engagement did not seem to diminish respondents' assessment of its value though, as @hollingsworth articulated on a blog post she shared through Twitter:

Twitter is often seen as a trivial form of communication. Yet its brevity can make the user think carefully about how to encapsulate ideas. I don't follow celebrities and I

don't follow friends. I follow a number of educational professionals whose views I respect. Some I have met, but many I haven't and, similarly, most of those who follow me haven't met me and don't know me personally. But through my Twitter connections I interact with, engage with and learn from a range of educationalists around the world, and reading the comments they post and following the links and resources they recommend has opened up a huge range of useful information on subjects in which I'm interested.

Here @hollingsworth is at pains to point out that whilst meeting face-to-face, may or may not happen, the social relationships formed on Twitter are of significant professional value nonetheless. Most respondents echoed this sentiment. In a particularly powerful example, @edwards31 Tweeted out this aphorism, as part of a presentation to entice more teachers to sign up for Twitter:

Give an educator a PD day and you teach him for that day; show an educator Twitter and you support him for a lifetime.

@edwards31 was keen to stress the value of Twitter in building up his 'personal learning network' (PLN) – exactly the same sort of network, in fact, that Deyampert (2013) identified as forming the backbone of educators' use of Twitter (see page 3). He described his involvement in the #satchat discussions and that he had gone on to meet many fellow #satchat colleagues face-to-face at conferences. He stressed the importance he attached to Twitter as a means of connecting him to people who exposed him to new ideas and knowledge. As he explained:

Before I was on Twitter I used to work in a school where I was seen as the IT guru. There was no one in the school better than me at IT. But when I got onto Twitter I met with people who knew much more than me about technology. I became surrounded by people who were better than me. I think it's important to surround yourself with people who are better, cleverer than you are.

Equally, several respondents were eager to highlight the way in which Twitter had allowed their professional networks to extend out beyond national boundaries. @cranston, for example, related how she had organised a conference in New Zealand for antipodean

geography teachers. In doing so she had connected with a series of British geographers who asked that she set up a hashtag for the conference to allow them to follow proceedings in real time. She explained how teachers from the UK were able to ask questions of eminent speakers remotely through their use of the conference hashtag – clear evidence, in her view, of the professional value of the medium.

Further analysis of the results extracted using TwDocs reveals that the number of followers each respondent had correlated closely with their level of engagement on Twitter. Perhaps unsurprisingly, the more users Tweet, the more connections they seem to make and the more people they are therefore able to entice to follow them:

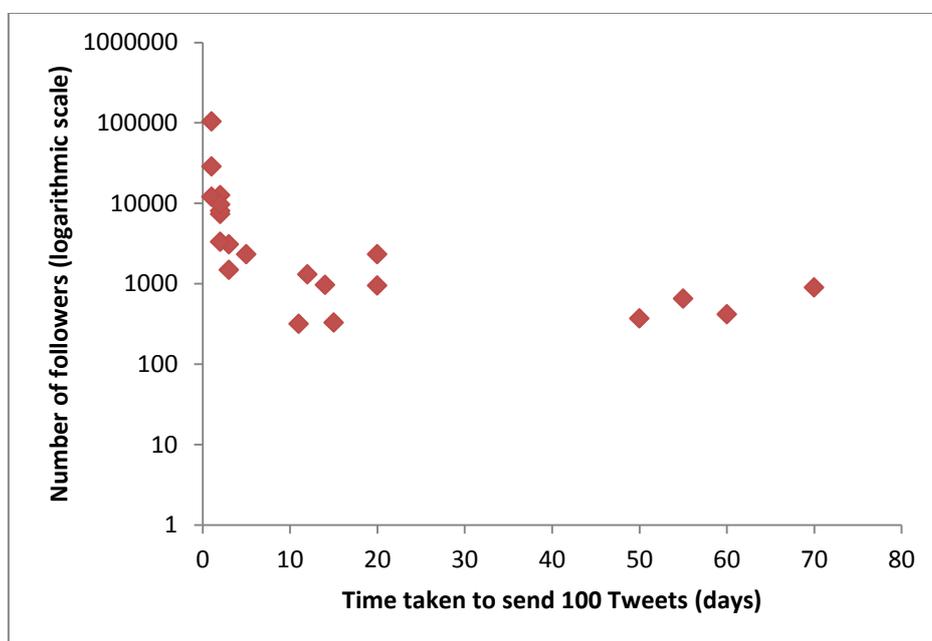


Figure 32, Follower count correlated against Tweet frequency.

Though it was rarely explicitly stated, many users evidently derived a certain amount of pride from having a large followership. This was particularly true of @noad who related in great detail strategies that he had adopted to increase his number of followers, including feeding Tweets out automatically throughout both the day and night (so as to attract followers from different time zones), assiduously checking his Twitter notifications and actively engaging with his followership. A small number of users though - @nancini being a

good example – reported using their Twitter network to converse only with a relatively small number of fellow tweeps and so, despite Tweeting fairly regularly, retained small followings (see Table 14).

So the importance for senior leaders of Twitter as a means of connecting and interacting with other users seems to be borne out strongly by the research. This, it would appear, is the principal reason that senior leaders in schools sign up to Twitter in the first place. Unsurprisingly, other similar studies have found the same. For example in the doctoral thesis carried out by Elias (2012), and referred to in the literature chapter, we read that one of his interviewees told him:

'If you believe that your job is to be the lead learner and to demonstrate that you have vitality when it comes to learning and staying informed, the social media is a place that makes that much more simple..' (Elias, 2014, p. 54).

In this study the findings reveal similar enthusiasm for making connections online amongst school leaders. So much so that many respondents were of the opinion that those teachers in their schools not on Twitter were starting to feel left out, and may even have begun to damage their careers through lack of involvement.

C.1.2. Challenge

Another theme that emerged from interviews, from participant Twitter timelines, and from associated blogs, was that senior leaders seem appreciate Twitter for its capacity to challenge and, on occasion, to affront. Twitter seems then to be meeting, to a degree, Field's stated requirement that professional development should encourage personal reflection and not always in a positive, affirmative way: 'Challenge and critique is how reflection is encouraged' (2011, p. 172).

By definition educators on Twitter like to share their thoughts and many link to their blogs through their Twitter profiles. So it was that through reading participant blog posts I was able to put further flesh on the bones of things participants had told me in the process of

being interviewed. Most were extremely forthcoming in explaining what they felt they had got out of Twitter professionally. Many explicitly referred to Twitter's role in terms of challenging their thinking. For example @jones, writing on her staffrm.io²⁸ blog, shared three reasons for embracing the share-everything culture that Twitter encourages:

- Clarify your thoughts. Nothing makes you think clearly like sharing your latest big idea with the world! It helps you to consider your solution from all angles and, hopefully, think about pitfalls before they happen. Luckily many teachers and educators around are very, very happy to share their experiences with you.

- Invite criticism. Strange one this one. I firmly believe that school leaders need to invite criticism; sharing decisions, thoughts and ideas will invite both supportive and, erm, not quite supportive comments. If it's not so constructive, then ignore it, but most of the conversation and comments that you will receive will be thought provoking and helpful. That's certainly my experience.

- Problem solve. There will be problems that you have not come across before. There will be ideas you have that you, or your colleagues, are not quite sure about! The very act of writing it down - along with options, ideas and so on will often help - but if not the chances are someone will have experienced something similar.

Her honesty here about Twittersphere's ability to stir up powerful debate is instructive. It echoes the accounts of most other leaders in the study. Leaders valued having their ideas picked apart by other tweeps. Twitter provided, for many, a useful sounding board for their thoughts before bringing them into their respective places of work. Though, as we shall see, there were some criticisms of Twitter in this regard, there were also many instances in which the senior leaders I connected with found Twitter an invaluable forum for debate and for refining their thinking about leadership issues.

Twitter hashtag chats (as discussed earlier and explained in Table 5) were particularly praised as forums for stirring up constructive debate by many of the respondents. Reference

²⁸ staffrm.io is a blogging platform for teachers set up in May 2014. Teachers are invited to share their thoughts and teaching ideas in 500 words or fewer.

to hashtag chats appeared in most respondent timelines, confirming that respondents were indeed engaging in these real-time, organised online conversations. This exchange below offers a vignette of the sort of exchanges that characterise such online gatherings. In this case @lowry is responding to a discussion about whether head teachers should get involved in classroom teaching:

@SLTChat: Should all school leaders teach? #sltchat

@Bunter: @SLTChat Not sure whether heads should? Do they have the time to do this well? But otherwise yes – role models. #sltchat

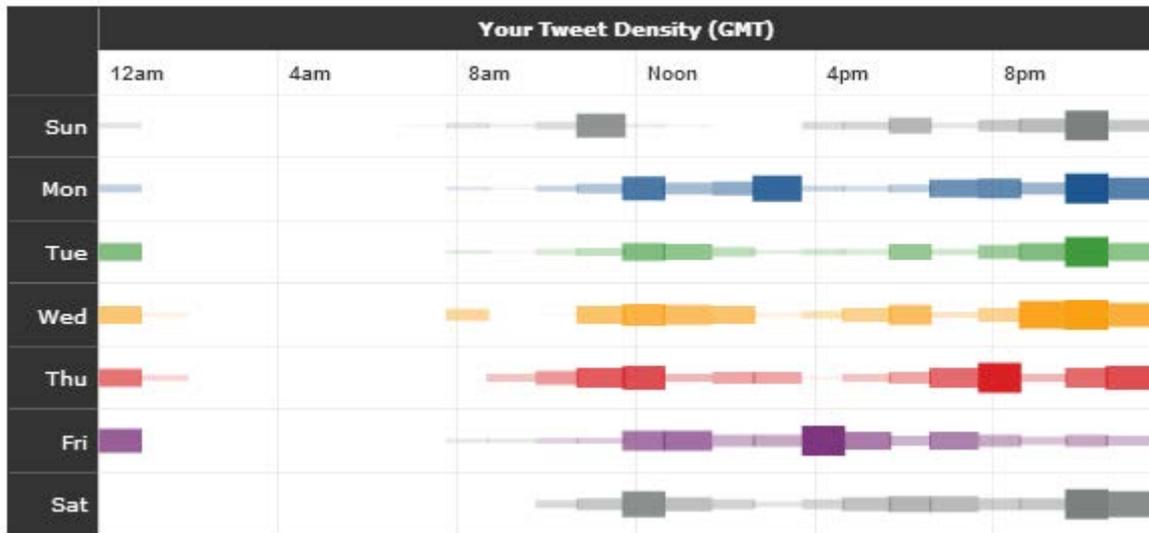
@SLTChat: @bunter – interesting point. Should head teachers teach? #sltchat

@lowry: @SLTChat @bunter yes but not too much. Otherwise lack credibility. Too much and impacts on other responsibilities. #sltchat

As can be seen, others have the opportunity to agree or disagree, or offer their own caveats and solutions to the problem posed. In this way hashtag chats offer an opportunity for senior leaders to share problems and to suggest possible solutions. Whilst many respondents reported joining in with chats at the allotted time (in the case of @parry ‘religiously’) a few did not. But these leaders still felt they were able to get value out of the discussions. Many respondents reported using the search functionality within Twitter to isolate hashtags that were of interest and either ‘lurk’ or to join in the discussion asynchronously.

‘Serendipity’ was a word used by many of the respondents – in each case unprompted – to describe the nature of interactions on Twitter. The ability of users across the world to search, respond and interact with material appearing in their own feed means that some material resurfaces unexpectedly and so reaches a new audience. An analysis of respondents’ Tweets using TweetStats, and the associated graphs, illustrates why this is the case:

Aggregate Tweet density breakdown for @nancini



Aggregate Tweet density breakdown for @hollingsworth101

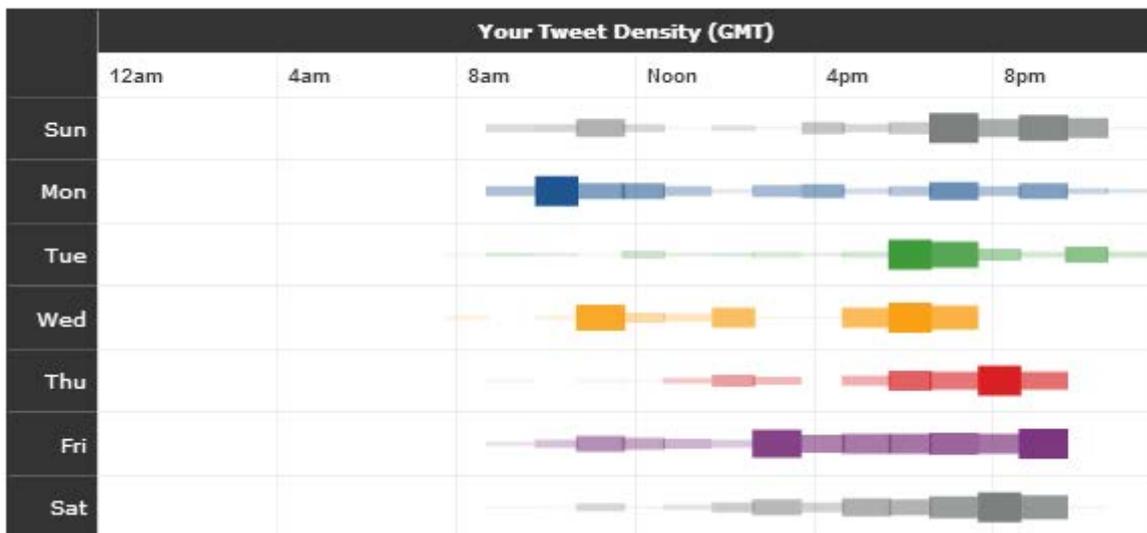


Figure 33, Daily aggregate Tweet density for two British tweeps. Generated by TweetStats.com.

As Figure 33 shows, British tweeps (unless they use a third party client like Buffer²⁹) fall silent during the night. During the day, however, they Tweet at subtly different times and, as a corollary, to different audiences. In this way connections between two senior leaders, who reTweet each other's material, or otherwise interact, can bring each leader to a new audience. Once connections are made between educators in different time zones this effect becomes even more marked; the reach of a particular user's Tweets spreads exponentially.

Herein lies the enormous potential - recognised by all the respondents - of Twitter to expose users to new ideas from different time zones, cultures and education systems. Both @mulholland and @noad were particularly keen to emphasise this point, having made connections with people across the English-speaking world. Indeed, @mulholland described how she was able to make a virtue of her sleeplessness in order to join in Twitter discussions with a group of educators in California. These were fellow educators from whom, she told me, she had derived great inspiration. Time-zone differences meant that for her such conversations often took place in the dead of night:

I've got a really good following in America; like some of my favourite followers are in America. Yeh so a guy called @chips- who's like properly an inspiration. So I'll join in on their chats ... and I get lots of ideas. It is interesting just for comparisons on how they are assessed.

The extent to which Twitter afforded her opportunities to make comparisons and take what was best from other teachers all over the world is clearly evident here. @mulholland also described entering into discussions of a truly international nature on Twitter. Her excitement about this is clear, even as recorded in print:

I've woken up in the morning and found people having a four way conversation: one of them in Oman, one in California, one in NZ and... anyway having a four way conversation about something that I'd done in a lesson. It was really, really brilliant.

²⁹ Buffer is one of a number of third party applications that allows tweeps to Tweet asynchronously and so space out their Tweets and/or reach a wider audience by automating Tweets to go out at times when tweeps in other time zones are active and awake.

Meanwhile @noad's use of third party apps to automate some of his Tweets such that they are spread out throughout any given 24-hour period is a deliberate attempt to secure engagement with a wider constituency of educators. As his TweetStats graph shows, his activity tails off during the night, but it does not stop:

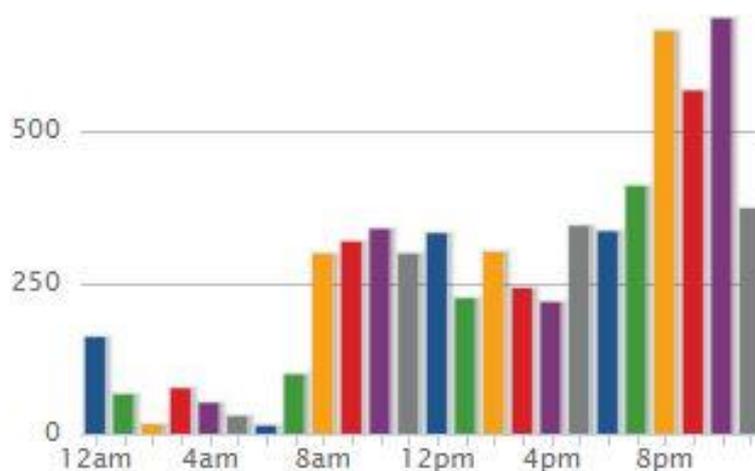


Figure 34, @noad's aggregate daily Tweets displayed by the time of day (UK time). Generated by TweetStats.com.

Note that the compressed scale on this graph underplays the number of Tweets still emerging from @noad's account when most people are asleep. Between 2am and 3am an average of 15 Tweets are sent, whilst between 6am and 7am (the lowest bar on the graph) an average of 13 Tweets are sent. This, of course, can only be achieved through automation. But, as @noad explained, it works in terms of securing wider engagement. The technique facilitates making connections with tweeps from a diverse range of school systems and presents valuable opportunities to interact and learn from them.

As an illustration of this, at the time I interviewed him, @noad had just returned from presenting at a conference in Canada. He had been asked to present a seminar on 'Teacher Resilience' at McGill University in Montreal. This invitation had stemmed from a connection he had made on Twitter. As he explained when I @ messaged him to confirm that I was not mis-representing what he had told me in interview:

@tjteacher: @noad before I misquote you did your Canada trip arise from a Twitter connection?

@noad: @tjteacher yes it did. Via @beer and then @lenon who ties up the details with @moroweic for @mcgillu

On his return from this trip he blogged about what he had learnt. In a section headed 'Challenges' he relates some of the things he felt he had got from the trip:

There were some very interesting discussions throughout the day; particularly on the demands of teachers and their workload. It appears, we all face the same challenges, yet there is little or no high-stakes accountability which we are so accustomed to here in the UK (e.g. Ofsted; DfE). It appears that local school administrators (senior leaders) are fully in control of what happens (or not), and it also is apparent, that teachers are assessed, judged, or graded in some form by assessors who come to see them teach 3 times a year. However, this may be in your first year and then never again for another 10 years, or even 20 in one colleagues [sic] story! (@noad, 2015, online)

This exposure to different education systems, different opinions and different cultures was something all the senior leaders in this study felt Twitter gave them. Indeed there was surprisingly unanimous agreement that Twitter was enriching and had enhanced their professional development in this regard.

But whilst many respondents reported enjoying having their views challenged on Twitter, most reported that they actively shied away from getting involved in heated debates. Table 15 shows clearly that only a tiny minority of Tweets from any of the users were categorised as showing displeasure. Respondents tended to stress their awareness of the public profile they had cultivated for themselves online and generally went to great lengths to avoid controversy. Many reported being followed by parents and pupils and therefore felt that they needed to moderate their output carefully. They were mindful of the potential audience for anything that they said. Indeed, as we have seen, on Twitter everything is public and can be seen by anyone who has the desire to search for it, unless a user opts for a protected account, which in this study none of the respondents did.

It might be assumed that the public nature of the medium reduces its value – but most respondents did not think so. Private messages, about sensitive operational issues for example, could be sent using a direct message, many explained. Meanwhile the open nature of everything else published on the network ensured that serendipitous connections with educators from all over the world were much more likely to happen. @johnson, for example, described his use of Twitter as mainly one in which he Tweeted out links to his blogs (suggesting an ‘In-Hub and Spoke’ structure to his network mapped according the Pew Research Centre’s Typology shown in Figure 17 on page 66). But he was very clear about the way Twitter had moved his thinking forward – the traffic had very definitely not been all one way. He described instances in which his thinking and practice had changed as a result of discussions he had had online:

Twitter has been transformative in terms of the way I access professional development. And my thinking has changed as a result of it too – let me give you an example. I used to be really into lesson grading – it was just something we’d always done. But in reading the Tweets and blogs of people I’d connected to on Twitter my view completely changed.

He was not alone in articulating this aspect of the transformative effect of Twitter on his professional development. Notwithstanding the concerns of some about the medium, all respondents agreed that the positives far outweighed the negatives and that Twitter had exposed them to uncomfortable things that had occasionally changed their professional practice for the better.

C.1.3. Social validation

In the Literature Review chapter (page 72) the importance Gronn (1999) placed on a strong sense of self-worth as a pre-condition for successful school leadership was discussed. It is significant, therefore, that most, if not all, of the interviewees credited Twitter with bolstering their sense of self-worth. Again, there are links back to the antecedent literature here, notably with Field’s (2011) explicit mention of the emotional aspects of high quality

professional development. But also, of course, with Gronn's (1999, p. 34) all-important 'socialisation agencies'.

Many respondents reported enjoying a frisson of excitement when something they had Tweeted was commented upon, or reTweeted. Thus, though they may not have used the term, Twitter was providing for them a form of 'social validation'. Some even recognised in themselves an element of affirmation addiction of the sort discussed on page 73. @parry, for example, described having to switch off the notification settings on her iPad and mobile phone during the day to avoid distraction. In doing so, she explained, she shielded herself from the strong desire she felt to check her notifications incessantly in real time.

@noad - with a Twitter following of over 90K at the time of writing - clearly felt a strong sense of self-worth at having such a large number of people interested in what he had to say via his Twitter account. So much so, that the banner headline on both his Twitter biography page and on his blog champions the fact. He describes himself as:

The most followed teacher on Twitter in the UK.

He explained in interview the scientific way he approaches expanding his following. Despite getting between 500 and 1000 notifications every day he told me that he responds directly and personally (with no third party help) to over 90% of them. This is all the more impressive for the fact that his Twitter account, in common with all the other interviewees, is managed entirely by himself alongside holding down a demanding senior leadership role in his school. During the course of our discussion, he described his life as a minor Twitter celebrity. People, he explained, would approach him at conferences and ask him whether he was 'the real' @noad. Added to this, he described how he used his vast Twitter presence to secure a change of employment for himself, openly advertising his services for hire on the internet. As a contemporaneous post on his blog explains:

I believe, Twitter and Blogging will help me find a new job without directly relying on the TES or Guardian Jobs – this is an audacious move for any teacher; albeit a senior teacher...

Can I also state – quite clearly – that I do not intend to enter any job through the back door. I am simply using this page as an advertising channel and an extra pair of eyes for job-alerts I may miss. I fully expect to take part in the application and interview process like any other teacher. I would be a fool to admit otherwise! (@noad, 2013, online)

Following his job search @noad did indeed secure alternative employment. He was clear in interview that the head teacher who had employed him had been attracted by the influence he commands in the Twittersphere. In his estimation his Twitter following had conferred a significant amount of social capital, not just for @noad himself *but also for his new school*. His new school would get spin off benefits from his work in the online education community – spin offs that his new head teacher was very happy to capitalise upon.

Several other respondents reported using their digital presence - and digital presence on Twitter in particular - to further their careers and to lend them an aura of authority and credibility. In this sense there was clear evidence of them trying to position themselves as ‘thought leaders’ of the sort that were identified in the Literature Review chapter (see page 76) and to increase their career capital. @coventry, for example, reported delivering several seminars and conferences on the back of connections he had made through Twitter. Indeed his Twitter handle itself (anonymised for the purposes of this study) was a deliberate attempt to market himself as a thought leader on Twitter for the British independent sector. It had opened up international opportunities for him too. At the time I interviewed him he had just accepted a new headship in Dubai. In a similar vein @cranston described how important her Twitter feed had been in cementing her influence within the community of Australian teachers in which she operated. As she explained:

I try to make sure that the stuff that appears in my timeline is useful to people. I don't Tweet that I'm going out to have a latte. It's not about me, it's about geography. I try to lead by example. I've developed a high profile within New South Wales through the work I've done at a national level and through my Twitter profile. If people read my stream they'll soon realise that I know what I'm talking about.

For @mulholland the level of social recognition that Twitter had afforded was similarly important. She related being a regular invitee to conferences as a result of her sizeable Twitter presence. She described how she had been asked to author a book in recognition of the influence she had built up on Twitter. This book, published just a few months before my interview with her, had used Twitter to crowd-source teaching and leadership advice from teachers she had connected with on Twitter. As such, it arose directly from social media and made direct use of her Twitter contacts both to gain traction and for its content. As she describes in the preface to the book:

A book of top tips written by brilliant and inspiring teachers, educators and leaders from all over the country, many of whom are experts in their field and shining examples of pedagogical excellence. A massive thank you is owed to everybody who has contributed to this book – their generosity is huge. Please do follow the contributors on Twitter, and share your own practice and ideas with the wider education community.

Thus by taking the time to connect with influential tweeps, and then by asking them to contribute to her book, she has been able to position herself as a socially influential British educator. Twitter enabled her to connect with, and curate the work of, fellow commentators. As a result, by her own account, her influence has grown exponentially. As a concrete example of the sort of social influence that many of the interviewees described wanting to develop it is without parallel. @mulholland was clear that it was Twitter that made authorship of her book possible in the first place and was thrilled – and not a little surprised - by the recognition and influence that it had afforded her.

By Tweeting and blogging regularly many respondents were deliberately cultivating for themselves a strong digital presence, one that would be useful to them in furthering their careers and in extending their influence as educators. Most recognised that the digital space was one in which they ought to be making their mark and defining themselves as leaders – marketing themselves as thought leaders in the online social world. In this world, they all agreed, it was important to be yourself (all respondents Tweeted and/or blogged using their

real names, if not in their Twitter handles then clearly displayed in their biographies). As @holloway explained:

At first I didn't really get Twitter; I had an anonymous account. But I moved to a school where people were really forward thinking and so I started Tweeting as myself. I've made a lot of professional links through it and have been able to market myself in my second career [as a photographer] too.

In the Literature Review chapter (see page 78) we learnt of the work of Naaman et al. (2010) in which it was demonstrated that 80% of Twitter users could be classified as 'meformers' - people who Tweet mainly about themselves, whilst only 20% were 'informers' those who shared information about others. However, these figures do not hold true for the senior leaders I investigated in this study. Table 15 (page 163) clearly shows that for none of the participants did news of any sort - let alone about themselves - feature as the biggest proportion of the Tweets in their stream. Nonetheless, as @holloway acknowledges, there was some self-promotion going on both amongst themselves and amongst the tweeps they were following. Indeed, many voiced concerns about tweeps who they thought had swung too far in the self-promotion direction. In this vein, several of the interviewees pointed to a distaste for self-publicists and careerists on Twitter.

@parry, for example, related how she had given up following Twitter hashtags at the allotted chat time because she found 'too many people post what they think they should say and not what they really think'. Meanwhile @morris reported a dislike for tweeps who were 'always on send'. He recounted having to unfollow certain users because their incessant Tweeting had clogged up his timeline. @renwick, on the other hand, was a little more circumspect. As he relates on his blog, speaking about one of the most prolific of UK tweeps (who also happened to be a fellow respondent in this study):

@noad, I feel, sometimes gets a bit of a bum deal. There's no getting away from it. He's a complete power horse. His phenomenal self-promotion and sharing of ideas is, well – massive. He blogs almost daily, he's deputy head in a busy London school, he Tweets hundreds of Tweets a week, he's a father and husband and is a force to be reckoned with and a force for good. The impact of @noad and what he does is

everywhere you go in education and there's no getting away from it. You may cringe when you read his bits where he says he's the most followed teacher on Twitter and other such self-promotion, but to be fair – I think he deserves it (@renwick, 2015, online).

So social validation, to varying degrees, forms an important element of leaders' desire to be on Twitter.

C.1.4. Unresolved tensions

A handful of respondents reported having encountered unpleasantness on Twitter. Usually, but by no means always, this unpleasantness was connected to their use of Twitter as a channel for their personal lives rather than for their professional ones. The issues raised are largely new ones, that do not have obvious antecedents in the literature.

Three respondents reported having to block other users from their timelines to put a stop to abusive comments. Using emotive language, one respondent articulates some of the concerns interviewees raised about the arguing that can arise on Twitter. Such arguing occurs when people with strongly held views come to blows:

I think what makes it really powerful is when you share your stuff and put yourself up for a bit of scrutiny. And then take it on the chin if it's crap or if someone else has done it better or whatever... But engage properly in those debates and not in just the kinda petty – you know crap – arguing that goes on. There are people who are like really good and who – you know – who I really respect who literally spend hours and hours a week defending their pedagogy. And I'm like you know what I just let them crack on. People like @billybunter I really rate their stuff and I think they're great but they just get embroiled in this like crap... Anyway so I've been blocked by people. There was this one guy who was kind of a dick and he blocked me. I think he only followed me out of courtesy and then I found when I tried to follow him that I couldn't. I think he only followed me out of courtesy. I think people must feel that they have to have balance.

This sort of experience was the exception rather than the rule though. @johnson, for example, told me ‘..if I’ve been trolled³⁰ I’ve missed it’. He recognised that opportunity to relate to people at one remove from behind the safety of a computer screen could lead to unpleasantness, but he claimed never to have experienced it.

More of an issue was that the 140 character limit to Tweets meant that it was hard to communicate nuance in a discussion. Many respondents related how Tweets could appear curt or rude when in fact they were meant to be nothing of the sort. A few respondents reported having been caught out by what on the face of it had appeared a dismissive Tweet, but which further discussion revealed was actually meant in a more accommodating, conciliatory spirit.

Many interviewees felt that Twitter allowed users to surround themselves with like-minded individuals. They recognised that this could have both positive and negative consequences. In common with most interviewees, @watson made explicit mention of what he referred to as ‘confirmation bias’. He saw in himself a tendency to gather a Twitter following comprised mainly of people with a similar socio-cultural outlook. Such fellow tweeps served only to reinforce his world view and any biases attendant with it. In this sense his experience mirrored the findings of Walker (2012) and his identification of the ‘homophily’ bias that social networks are vulnerable to (see page 94).

Additionally, specific mention was made by several respondents of the polarised nature of the progressive versus traditional camps on Twitter. Teachers with a more progressive teaching outlook were seen as clustering around a few influential champions, whilst the same clustering occurred amongst the traditionalists. Fierce debates were often described by respondents, in which neither side was willing to back down. As @nancini wrote on his staffrm.io blog, and reinforced in interview, this could lead to myopia amongst educators if they did not consciously seek out alternative views:

³⁰ Trolling refers to abusive, aggressive or otherwise unpleasant treatment online of one tweep by another.

Some Republicans were amazed Obama was re-elected... Why? They read only the Republican media. It is really important to read views that are different from one's own. Social media is not a good forum for proper debate: people coalesce into interest groups; Devil's Advocates struggle; gunslingers and snipers shut down discussion.

Thus amongst most respondents there were concerns that Twitter, if not used sensitively and responsibly, could foster an unhelpful group-think and close down rather than open up serious debate about what works in education.

The tendency of users to surround themselves with people whose views they agree with is referred to in Twitter circles as the 'echo chamber' (although @lambkin used the alternative term 'filter bubble' in his interview with me). Indeed, the term *echo chamber* has such significance in the lexicon of edu-Tweeters that an influential blog has adopted the name. The Echo Chamber, overseen by @oldandrew, himself a teacher, makes a point of curating blogs that run counter to what he sees as the unstintingly progressive reporting of education issues in the mainstream press. As @oldandrew explains on the blog itself:

The Echo Chamber grew out of a realisation that there were a good number of teacher bloggers who were blogging to express opinions that simply didn't fit in with the opinions the media attributed to teachers but did seem to fit in with those views I heard regularly in the staffroom from classroom teachers (@oldandrew, 2014, online).

Here is clear recognition that both long-form pieces and micro-blogs (like Twitter) run the risk of exposing readers to a very one-sided debate, sometimes deliberately so. In this sense online material is extremely vulnerable to the confounding effects that Walker (2012) identified and that were discussed in the Literature Review chapter (see page 94).

Indeed, Twitter itself feeds the echo chamber tendency because of the algorithms that the platform uses to serve users with suggested content and with suggested users to follow. Twitter serves users with material they will like, or that is similar to material they are already seeing. It suppresses novel, controversial or contradictory material. In this way there is danger, recognised by many of the respondents, that *unless a determined effort* is made

to engage with users holding alternative views the Twitter experience becomes insular and detached. It will not cause offence, content will be pleasing to the user, but neither will it serve up the multiplicity of resources, views and opinions that most senior leaders reported wanting it to. In short, many respondents were at pains to point out that there is a real risk that a distorted view of the wider world of education might emerge.

In recognition of this problem, a few respondents actively tried to counter the tendency to cosset themselves in an echo chamber by seeking out and following Twitter users whom they knew would challenge their views. The aim, for these few, was to ensure that their timeline fed them with alternative views from time to time. By way of confirmation, there was some evidence on users' timelines of disagreement. This exchange on @edwards's timeline being typical of the genre:

@edwards : @jplante @alicekeeler Alice (and I) disagree with you. Thanks Alice!

@parke: @jplante @alicekeeler That makes no sense.

But expressing contrary opinions rarely got further than this. As evidenced in Table 15 on page 163, very few Tweets from respondents expressed any kind of disagreement no matter how understated. The global figure for all 21 respondents was that an average of only 1.15% of Tweets showed displeasure of even the mildest kind. The implication is clear: for senior leaders at least, Twitter is a forum for connecting with like-minded individuals, whilst steering clear of disagreement.

Most leaders reported that they used their Twitter accounts both for personal and for professional use; analysis of their Twitter timelines confirms this. For example on one user's timeline we get an update on their Saturday night TV watching habits juxtaposed next to Tweets requesting help with an e-safety presentation:

@derbridge: Quality Saturday night watching @voiceUKbbc but more specifically @Rickontour

*@derbridge: People are Tweeting professional advice and I'm ogling Ricky Wilson.
#dayoff #thevoiceuk #timeout #eyecandy*

*@derbridge: RT @nick_elliott10: @massineducation @theleighutc any chance of
you doing something similar at @UTCLincoln? #esafety (@drronamackensie)*

Whilst on another user's account we see exchanges about a live sporting event next to Tweets about primary maths resources:

@edwards: If Duke wins, they should play Kentucky for the championship. #FinalFour

*@edwards: Comprehending Math: Adapting Reading Strategies to Teach
Mathematics @denninespin @trigutman <https://t.co/FM9kQYyH5n> (@edwards31)*

Such exchanges, mixing the private with the professional, were not unusual. They were described by @lambkin, echoing the words of many other respondents, as representing in tweeps an 'unresolved tension' as to the purpose of their accounts. @lambkin explained how on the one hand the main function his account was as a professional network, on the other he reported occasionally posting items on his timeline that would only be of interest to a very select (usually local) group of individuals. He felt that the primary audience for his Tweets was parents and therefore that he had to be careful not to alienate them – not to be seen to endorse anything that might be controversial. He related a salutatory story from a competitor school, which had contributed to his caution:

A school down the road reTweeted a pretty innocuous looking Tweet from a prospective sixth former. Something like: 'Really looking forward to joining X sixth form next September #excited'. When I clicked on this Tweet it led me to the teenager's Twitter profile on which were posted a succession of messages showcasing the very worst teenaged excesses. What started off as an innocent marketing action by the school had the potential to cause serious reputational damage.

Ultimately the view amongst many respondents was that the management of Twitter (and other social networks) in school boiled down to having to conduct a proper risk assessment. Most respondents felt that turning the school's Wi-Fi into a walled garden was

counterproductive and futile. Pupils and staff were able to easily circumvent systems by switching to 3/4G. Some even championed the ‘unresolved tension’ that @lambkin identified:

I mainly use Twitter for work; but I also want people to see who I really am. I don't try to hide the fact that I have a life out of school. I think it's important for pupils and parents to see the real me (@derbridge).

Though there was disagreement amongst respondents over this issue, a few others echoed the sentiments of @johnson:

I keep my Twitter account purely professional. My timeline shows only me as a head teacher.

Whatever their views on the public/private demarcation, perhaps unsurprisingly the educators in this study were inclined towards a liberal attitude to social media in their schools. Most actively encouraged teachers in their schools to join in with the conversation on Twitter even though some reported concerns amongst governors, fellow teachers and other school administrators.

As an illustration of this, @edwards31, a primary school deputy in the north-east United States, bemoaned the restrictions put on his online communications by his school district. He explained that he had Tweeted out a blog post calling for more teacher empowerment but had been reprimanded by district administrators as a result. The school district felt that his Tweet had not been ‘on message’ and he should restrict himself to more anodyne material in the future. He, on the other hand, felt that he had been misrepresented. He was at pains to point out that he viewed Twitter as a forum in which ‘educators throw ideas out’. Teachers’ ideas might occasionally be at odds with those of their employer but this was fine, so long as they were articulated in the right spirit. He described the district as ‘what if-ing everything to death’ and failing to embrace what, in his view, was a powerful source of teacher self-improvement. He went to explain:

In fact I only think teachers post stuff the district board don't like if they feel their voice hasn't been heard via other channels.

In his bold embrace of the controversial, though, he was unusual. Most educators reported having to moderate their views on Twitter in the knowledge that anything they posted was in the public domain. Controversial material could lead to dismissal if deemed inappropriate by stake-holders. Where it was felt there was sufficient consensus, they could hold forth, but they tended to steer clear of more emotive topics. @lambkin's account is representative of the majority view:

So yeh, I Tweet stuff out about lack of funding, because no one's really going to disagree with that. But I keep my mouth shut about other things – some parents or governors might get funny. I'm always aware I've got to be careful what I put out there.

Finally some interviewees recognised the capacity for Twitter to become addictive and to therefore start to hamper rather than enhance their personal and professional lives. As @holloway explained:

I used to waste hours on Sunday mornings arguing with people I wouldn't give the time of day to in real life. So I don't check my account on Sundays anymore.

Whilst @parry described how living on her own most of the time, with her husband working away, and her children having grown up and moved out of the family home, she used Twitter as a sort of 'comfort blanket'. She had had to resort to rationing her time on the platform in the evenings and at weekends. In a similar vein, @johnson related:

If my wife could take away my phone and crush it she would do.

@johnson had taken to making Saturday mornings social media free to force himself to engage with the present. By the end of a Saturday morning though he described feeling the need to flick through his Twitter feed and see what he had missed. Seeing his distress his wife often relented.

@johnson was the only respondent to flag up concerns about rights, ownership and the commercial implications of heavy Twitter use by senior leaders. He explained how he had come to an agreement with his governors over who would own what and what he would and wouldn't Tweet about. He described setting up his blog as a separate financial entity and agreeing with governors the terms of reference relating to content and ownership of the material he posted online. Interestingly, he predicted that as the importance of digital presence grows over time, intellectual property issues as well as the legal implications surrounding the ownership of online digital presences will surface ever more frequently. Many teachers, he opined, were unaware of the implications of such matters. For the digitally connected leader, moving schools, or otherwise changing loyalties, could be fraught with legal difficulty.

Conversation code	@noad	@watson	@mulholland	@nancini	@hollingsworth	@renwick	@evans	@coventry	@morris	@hicklin	@jones	@bowd	@Head Durham	@johnson	@derbridge	@cranston	@robb	@lambkin	@drronamackensie	@edwards31
Request for information	1	2	3	0	3	0	1	0	0	3	6	0	0	1	1	0	1	1	3	3
Sharing of news	19	20	17	26	17	7	1	41	8	18	6	12	20	7	5	12	5	22	13	6
Sharing of resources	18	53	26	27	23	32	11	5	4	18	20	23	10	29	0	6	4	24	5	17
Showing appreciation	5	4	11	1	17	9	4	4	1	6	9	17	1	2	5	5	4	3	1	6
Showing displeasure	2	0	0	0	2	0	0	5	0	2	4	2	1	0	2	0	0	1	2	0
Responding to others	55	21	43	46	38	52	83	45	87	53	55	46	68	61	87	77	86	49	76	68

Table 15, A breakdown of Tweet type for each of the respondents.³¹

³¹ Each respondent had a random sample of 100 Tweets analysed from their timeline and extracted in the manner described on page 110.

C.2. Research question 2: How deep and broad are the Twitter networks of the sampled school leaders?

The breadth and depth of each respondent's Twitter network was analysed in a number of ways. Firstly, using the information generated by TwDocs, it was possible to analyse the number of times other individuals were mentioned in each respondent's Twitter timeline. These figures act as a proxy for connectedness in the sense that they show the extent to which respondents were using their Tweets to interact with others – the resultant figures appear below, in Table 16:

	Twitter handle	Number of mentions of other individuals
1	@noad	215
2	@watson	100
3	@nancini	146
4	@hollingsworth	170
5	@renwick	206
6	@mulholland	134
7	@morris	180
8	@coventry	105
9	@evans	203
10	@hicklin	112
11	@jones	105
12	@bowd	100
13	@johnson	100
14	@lowry	174
15	@derbridge	152
16	@cranston	143
17	@robb	180
18	@lambkin	100
19	@parry	155
20	@edwards	149
21	@holloway	159

Table 16, Mentions in the timelines of the study respondents.

Note that within each sample of 100 Tweets there were no instances of respondents making fewer than 100 mentions of other discrete individuals. This is not to suggest that every Tweet analysed contained reference to another Twitter user (Table 15 indicates clearly that this was not the case). It is possible to mention more than one user in any given Tweet. Nonetheless, what is clear is that the leaders studied are all – to varying degrees – active in

including others in their online conversations. The medium is inherently social and leaders valued this. Where Field (2011) identified personalised and collaborative professional development as being valued by educators Twitter seems to be fulfilling a need. These figures are striking in revealing such little difference between the respondents, especially given the large variations (see Table 14 on page 136) between the number of followers each tweep had. When the differentials are analysed more closely these figures emerge:

	Standard deviation³²	Range
@mentions	37.80	115
Follower count	19795.33	90475
Following count	2150.297	7886

Table 17, Statistical analysis of various Twitter metrics for the study sample.

What is instructive here is the huge spread around the mean in terms of follower count – the standard deviation for follower count is fully 520 times bigger than the same figure for @mentions. This suggests, strongly, that whilst users may vary greatly in the number of followers they have they vary far less so in the number of interactions they have with others on Twitter. Indeed the range for these interactions – just 115 – conceals the additional fact that no user had more than 215 @mentions during the period when their Tweets were being harvested for analysis. 215 is a figure surprisingly close to the maximum number of meaningful interactions that the human brain can cope with proposed by Dunbar (1992) who suggested a number between 100 and 150.

Following this conventional statistical analysis, using NodeXL, it was possible to visualise the size and breadth of the networks associated with each respondent. For each respondent, the last 100 Tweets on Twitter mentioning their Twitter handle were analysed. NodeXL was then able to generate graphs like the one below to illustrate the various connections between users. The more tight knit a user's network the closer stronger were connections between the user and his Twitter correspondents.

³² Standard deviation is a measure of the spread around the mean. The larger the standard deviation the bigger the spread.

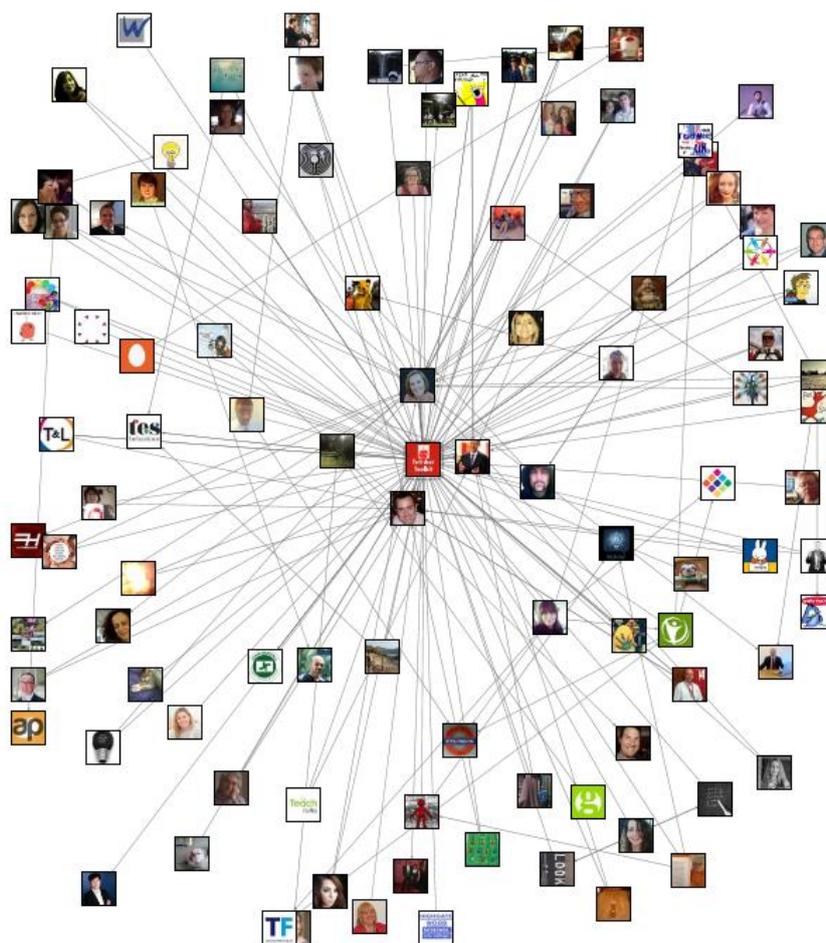


Figure 35, A Twitter network graph of 100 randomly chosen Tweets mentioning the @noad user name. This graph was generated by NodeXL using the Fructerman-Reingold algorithm.

It is important to explain exactly what this exemplar graph shows. Each line between the Twitter users shown represents a relationship between two or more users – be that a reTweet, a mention, a reply or a direct appellation (Table 4 on page 26 gives definitions of these terms). Twitter users with the most connections between each other appear towards the centre of the graph, whilst less connected users appear towards the edges. In this way the connections between users, together with the relative strength of these connections, can be visualised in a powerful way. However, as the makers of NodeXL are at pains to point out, the search results served by Twitter on any given term (in this case a search was carried

out for a particular user’s Twitter handle) are often incomplete. This incompleteness arises because Twitter serves only ‘results that are focussed on relevance and not completeness’.³³ As an added complication the algorithm that Twitter uses to match Tweets with a search query is undocumented, presumably for reasons of commercial secrecy. As a result it is not possible to articulate fully the mechanism by which such graphs, or the metrics associated with them, are devised. Interesting though these graphs are it is the clustering coefficient generated for each Twitter user by NodeXL that gives a more tangible measure of the tightness of their networks. Users with a high clustering coefficient have lots of friends who know friends – in other words their network is contains many links within it. By contrast users with a low clustering coefficient may have a lot of connections on Twitter but their connections interact less with each other, suggesting that their network is more disparate. The average clustering coefficient of any given network is always a number between 0 and 1, where 0 is extremely disparate and 1 is maximally clustered. The average clustering coefficients of all the respondents in this study are listed in Table 18:

	Twitter handle	Average clustering coefficient		Twitter handle	Average clustering coefficient
1	@noad	0.425	12	@bowd	0.188
2	@watson	0.667	13	@johnson	0.478
3	@nancini	N/A ³⁴	14	@lowry	0.266
4	@hollingsworth	0.494	15	@derbridge	N/A
5	@renwick	0.309	16	@cranston	0.255
6	@mulholland	0.314	17	@robb	0.280
7	@morris	0.425	18	@lambkin	0.056
8	@coventry	0.334	19	@parry	0.434
9	@evans	0.339	20	@edwards31	0.429
10	@hicklin	0.126	21	@holloway	0.422
11	@jones	0.190			

Table 18, The average clustering coefficient for each of the tweets in the study.

³³ This is explained in the developers’ documentation for Twitter posted here: <http://goo.gl/B46St5>

³⁴ Note that in two cases a clustering coefficient was not possible to calculate because these users had not Tweeted sufficiently regularly in the week preceding harvesting of the data. Twitter only releases via its API Tweets that are less than a week old.

It should be stressed that these figures represent the clustering coefficients for only 100 randomly selected Tweets from each user. As such they offer only a snapshot of users' Twitter activity. Nonetheless, they serve as a useful proxy for the breadth of users' connections. What is immediately apparent is that the Twitter networks of school leaders are broad – they are not populated only by individuals who know each other (as would be the case had users had network coefficients closer to 1). The highest network coefficient was generated by @watson's timeline suggesting that his network of Twitter connections is tighter than is typical – in other words this suggests that many people in his network also know each other. The reason for this emerges from inspection of Table 15 (on page 163).

Here we see that @watson's Twitter account is used more for broadcasting than it is for connecting. His network therefore most closely resembles the 'In-Hub and Spoke Broadcast Typology' depicted in Figure 17 on page 66. But the people he broadcasts to are themselves closely connected. He has the lowest percentage of Tweets in which a conversation is engaged in (just 21% compared to an average across all the respondents of 59.8%) suggesting that most of his traffic is one way – from him to his followers with little interaction in the other direction. In this sense his use of Twitter is atypical amongst the leaders in the study. Senior leaders - in this study at least – tend to make connections across a broad spectrum of people, many of whom will not know of each other and who are therefore only connected vicariously through their link with the individual known to both of them.

I was offered a snapshot of the way such networks can evolve and expand as I conducted my research. On one occasion, as I neared the end of the data collection, phase I Tweeted the following request:

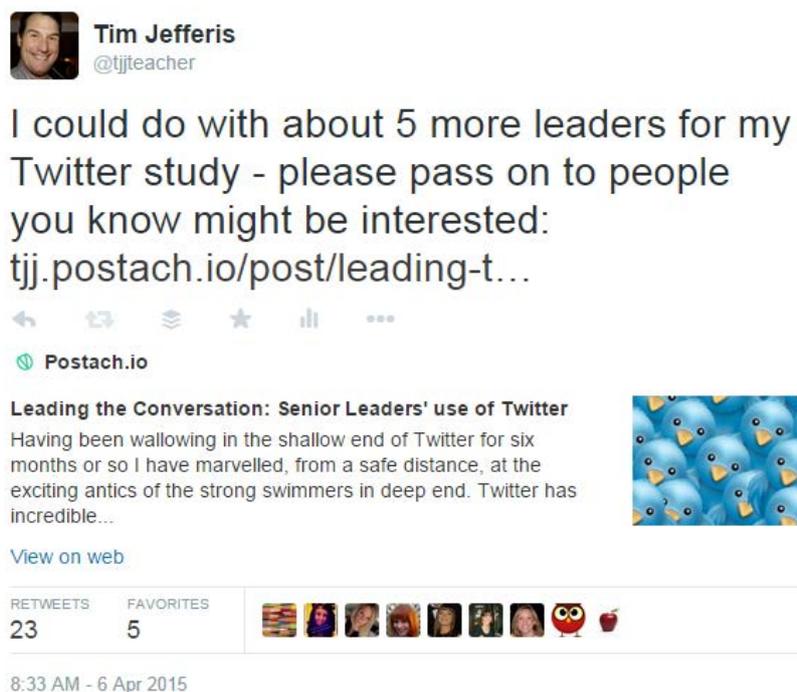


Figure 36, A request for more respondents using Twitter.

As can be seen this request was reTweeted 23 times and favourited 5 times. It resulted in an avalanche of people offering to participate in the study. One such person was @cranston – a person I had never connected to or interacted with previously. Indeed she works at a school in the suburbs of Sydney – over 10,000 miles from my home location. And yet a fortuitous series of connections meant that my Tweet appeared in her timeline (having been retweeted by one of my followers) and so she responded accordingly. Thus in the serendipitous way many respondents referred to (see page 145) an additional valuable connection was made *with someone significantly outside my normal social network*.

The figures for average clustering coefficient displayed in Table 18 suggest that such out-of-the-ordinary connections with people who otherwise have no reason to connect are not unusual on Twitter. This suggests that leaders are right to be excited about the potential for Twitter to expose them to the new and unusual if they want it to. Their fears about the Twitter echo-chamber need to be tempered with the knowledge that Twitter does have the capacity to connect them to people they otherwise would never meet.

There is a caveat to be made here though. Analysis of respondents’ timelines revealed that their PLNs are most readily used for transferring explicit rather than tacit knowledge. The distinction between these two types of knowledge is illustrated in tabular form by Daniel (2003, online):

Tacit knowledge	Explicit knowledge
Drawn from experience and is the most powerful form of knowledge	Can become obsolete quickly
Difficult to articulate formally	Formal articulation possible, and can be processed and stored by automated means, or other media
Difficult to communicate and share	Easily communicated and shared
Includes privately held insights, feelings, culture and values	Formally articulated in public
Hard to steal or copy	Can be copied and imitated easily
Shared only when individuals are willing to engage in social interaction	Can be transmitted

Table 19, Tacit vs explicit knowledge (Daniel et al, 2003, online).

Take for example the selection of Tweets that appear in transcript in Appendix 5 on page 267. Here it is clear that in just 140 characters brief, factual (explicit) responses are easier to communicate than are more nuanced (tacit) ones. For more detailed and difficult to communicate sentiments users often link to blog posts, taking tweets out of Twitter itself and on to the wider internet. By referencing long-form posts, many of which invite comments and interaction from readers, tweets are able to circumvent to some extent the criticism that might be levelled as Twitter as being superficial. Long-form posts can be deeply personal, informative and emotive in a way that the micro-posts cannot (see page 149 for an example). No tweets in this study restricted themselves just to referring to and referencing material within Twitter itself. In this sense, although the 140 character limit is restricting and might be seen to limit the depth of interactions on Twitter in actual fact online communications facilitated by Twitter interactions can be deep, engaging and nuanced. In the sample Tweet stream in Appendix 5 fully 76% of the Tweets refer fellow tweeps to long-form material outside Twitter. This suggests that Twitter, or at least the connections and discussions it can lead to, can result in the transfer of tacit knowledge in a way not normally associated with remote communications.

C.3. Research question 3: What are the ways in which Twitter has contributed to school leaders' professional development and career progression?

The research identified four key ways in which Twitter can be said to be contributing to school leaders' professional development. These are discussed below.

C.3.1. Networking

Firstly, it emerged that leaders valued the network of fellow professionals that Twitter afforded them. Twitter networks were seen as being far broader and easier to construct than a more traditional professional networks of the sort that authors like Field (2011) and Eraut (1994) point to as being so valuable. All respondents spoke warmly of the enormous contributions they felt Twitter networks had made to their professional journeys. In one salutary example @lambkin related how Twitter had helped him as he progressed from deputy headship to headship. In his particular case he faced the twin hurdles, on taking up his first headship, not only of moving into a new job but also of changing sector (from independent to maintained). As he explained:

I found Twitter incredibly useful when I first started. For example, one of my first tasks here was to set up a performance related pay policy. I had no idea what to do, but I connected with @chipperfield and @cripps through Twitter who had posted their own policies publicly for people to share. Having discussed these with them I felt knowledgeable about something that not long before I'd been totally ignorant about.

Here is clear evidence of a senior leader using Twitter constructively in his journey from 'formation' to 'accession' as envisaged in Gronn's (1999) career stage model (see Figure 10 on page 40). There is a real sense of the solidarity that Twitter networks can engender. Senior leaders in an otherwise lonely job (see page 139) can turn to Twitter for moral support when times are tough. Twitter provides a network of like-minded individuals who can be corresponded with either to give advice or, sometimes, just to provide a listening ear.

One of the few in the respondent cohort who had retired from school leadership had clearly had a big influence on at least one of her followers on Twitter. Here she is in discussion with a head teacher designate (@bunter) talking about a blog-post he has just written about his recently announced promotion:

From @hollingsworth: '@fatteacher @bunter Yes! And Chris has been in the audience when I've talked about my research & I can see glimmers of that here!'

From @bunter: '@hollingsworth @fatteacher more than glimmers Jill - it's been formative!'

Even from this small snapshot it is clear that @bunter, the head teacher designate, is warmly appreciative of the influence @hollingsworth has had on his career ascendancy.

In a similar vein @parry, another respondent who had recently taken up position as a head teacher, was keen to relate the help and support she felt she had derived from fellow head teachers she had met on Twitter. She felt she always had someone to go to when faced with a new problem. In addition, as has already been described (see page 139), she explained that Twitter provided a useful antidote to the sense of isolation she felt as the most senior member of staff in her institution. Similar stories were related time and again by other leaders I spoke to in the study cohort.

C.3.2. Opinion seeking

Secondly I found that leaders in the study cohort valued Twitter a sort of digital sounding board for their ideas. Table 15 (page 163) shows the extent to which the senior leaders in this study use Twitter to share resources and expertise. The low number of 'requests for information' however might lead to the conclusion that leaders do not in fact use the network for obtaining specific answers to specific questions. Nonetheless, interviews suggested otherwise; with many respondents describing their use of the direct message facility in Twitter to converse with members of their network about sensitive topics. This explanation from @parry was typical:

I tend to DM [direct message] people when I need really specific help. It doesn't look good to be always asking for help in the public sphere.

Thus it is reticence about being seen to need help – with all the issues about confidence in leadership that might entail - that explains the low number of public requests for information. In actual fact the majority of leaders spoke warmly and enthusiastically about the ability of their Twitter networks to provide them with the information and help that they felt they needed. Here it is seen to be fulfilling one of Field's (2011) stated requirements of effective professional development in providing relevant, personalised help to senior leaders.

There were numerous accounts from interviewees about their use of Twitter as a sounding board for their ideas. Some leaders related how they had used Twitter to carry out straw polls on key leadership issues. Such polls often feature prominently in hashtag chats like the Sunday evening #SLTchat that several respondents spoke of being involved in. If a leader wants to make a change in their school that they think will meet with opposition, they can present the case more forcefully to their staff if it is known that similar initiatives have been adopted by other schools. Thus using Twitter to 'gauge the temperature' about a particular issue is key.

I saw @mullholland, for example, use the straw poll technique to great effect in a presentation she gave at an EdTech conference in Cambridge at which I happened to be in the audience. She was arguing that work experience in schools had become a shadow of its former self and needed radical reform. On one of her first slides she showed the audience a summary of the responses she had received to a question she had asked on Twitter. Sure enough, several hundred people had replied in terms that supported her assertion. The central thrust of her argument was powerfully made.

C.3.3. News curation

Thirdly leaders in the study valued Twitter as a source of professional information and advice. Twitter, they felt, gave them timely access to the latest news in education in an

easily digestible format. @derbridge, for example, was effusive about the use of social media, and Twitter in particular, amongst the staff and pupils in her school. Departmental heads, teachers and pupils were actively encouraged to use Twitter to connect and engage with the wider world of education. In the case of teachers, this meant that they were exposed to the latest debates and resources in education. In the case of pupils, @derbridge related how children in her school were encouraged to use Twitter to gain access to UCAS information, revision materials and topical subject news. The school's VLE and campus-wide plasma screens, she explained, had until recently had a Twitter feed embedded on them. The recent spate of radicalised teenagers heading off to join the cause of ISIS had resulted in a decision to remove the feed and revoke access to the network using the school's Wi-Fi. This decision was to be reviewed again shortly, however.

There are no obvious antecedents to the use of Twitter in this way in traditional forms of professional development, except to say that Field (2011, p. 171) mentions the importance of effective professional development being 'evidence-based'. Users in this study were shown to be using Twitter to get information from a variety of news outlets to inform their practice – something for which there is no direct parallel in the traditional, offline professional development.

Several respondents stated that they always had Twitter open on a browser tab during the school day. By periodically checking their timelines they were able to keep abreast of educational news as it unfolded. They therefore often felt ahead of the game. School leaders can feel bombarded by information and so this attachment to *yet another* news stream might seem puzzling. But the brevity (maximum 140 characters) and immediacy of Twitter actually lends itself to perusal by time-pressured leaders. Seven of the respondents related how, for them, Twitter was their principal source of curated news. Some would turn to Twitter deliberately when feeling buried under paperwork to get short, to the point, summaries of documents that they were supposed to have read or responded to.

Numerous senior leaders reported actively encouraging teachers and departments to open Twitter accounts and get active on the network. The head teachers @morris and @lambkin both related how they had created a climate in their schools where there was an expectation that academic departments would maintain active Twitter accounts. Both had let this happen organically, and it was all still very new. This led @lambkin to wonder whether in the future his school needed to insist on more consistency of message and branding from these accounts the entirety of the output unmonitored at present.

C.3.4. Serendipity

Fourthly, the leaders in this study were unanimous in their praise of Twitter's ability to surface material that would have otherwise have remained unknown to them. As an illustration of his belief in the power of the medium to further teachers' professional development @evans explained how he had initiated, back in January 2013, a scheme called Bring a Teacher to Twitter (BATTUK). On the BATTUK website he explains the rationale behind the scheme:

So, what is BATTUK? Well, if you're a Twitter user, you already know how powerful it is, how useful it can be? A digital staffroom, where someone, somewhere will have an answer for you. You can go to Twitter to vent your frustrations; to ask for help; to make someone smile; to have someone make you smile. A place where you can be as open or as anonymous as you like.... Fancy the challenge? Think you can convince a member or members of your staff to join the Twitter train? [Sign up \[HERE\]](#) and you will be helping them, helping us. Unlike our school, this staffroom is unlimited in size, our doors are open – let's welcome you in.

He, and others, relate countless stories of help, encouragement and a shared sense of purpose that they have got from being on Twitter. Indeed, several interviewees related having attended Twitter inspired 'TeachMeets' in which educators meet face to face and share best practice. It is routine at such gatherings for Twitter to serve as a 'back channel' on which delegates Tweet their thoughts and so share their experiences with a community

far wider than simply those physically in attendance. At the invitation of one of the respondents - @renwick - I participated vicariously in #TMLondon³⁵, following the Tweets online and monitoring the level of engagement amongst delegates. The NodeXL diagram for the event looked like this, with a few key educators very influential in the network that developed:

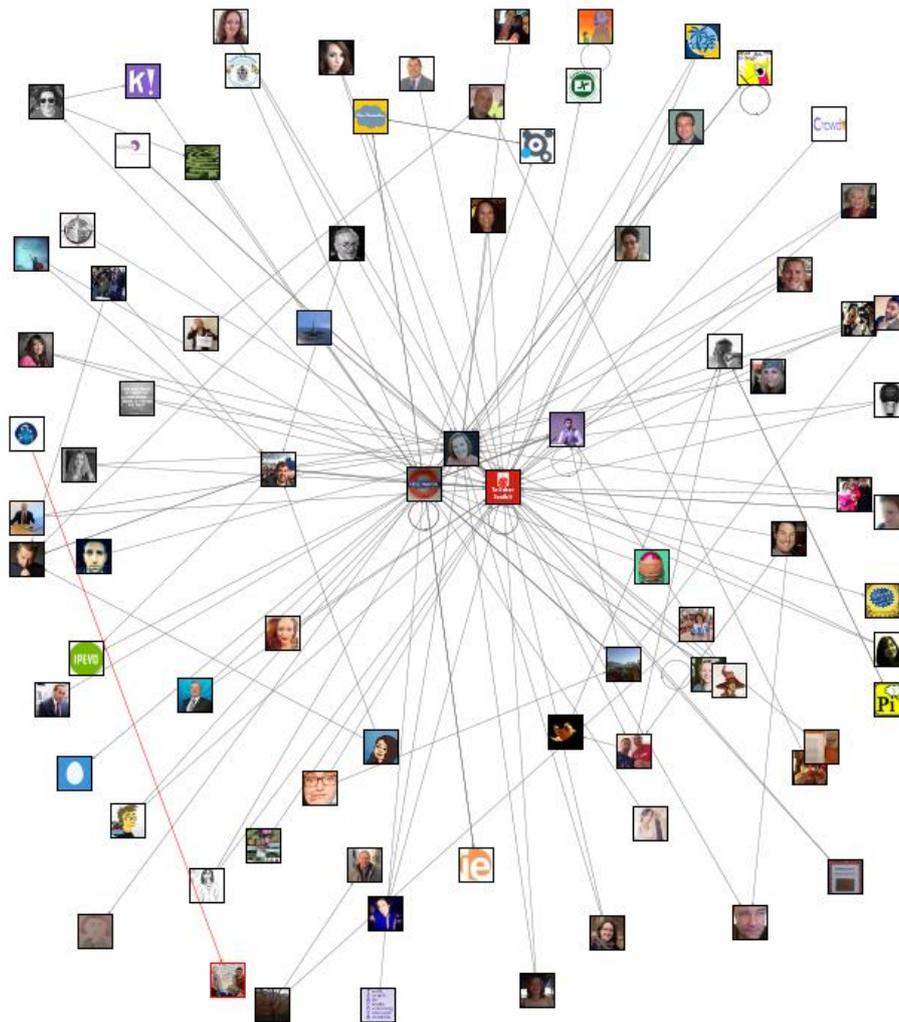


Figure 37, The NodeXL network diagram for #TMLondon.

³⁵ #TMLondon took place in London on Wednesday April 1 2015 and was attended by several of the leaders who I interviewed as part of this study.

But it is the nature of the Tweets and the blogs that such a meeting generates that points most decisively to Twitter's utility. As @renwick explained on his blog following the event:

I was reminded last week on the power of Twitter which brought together 250 education professionals to London for #TMLondon. Selfies, trending, hashtag, learning and sharing all took place and not only were there 250 teachers there, there were more than 200 viewing online at the same time too. It was phenomenal. It got me thinking again about the power of Twitter.

In this way Twitter has provided the platform for a great deal more connection between teachers that was ever possible before. As such, these serendipitous meetings have no precedent in traditional, offline professional development. All the respondents related how Twitter had broadened their perspective in numerous and often unexpected ways. The serendipity of Twitter has already been discussed. It was a theme that was referred to again and again by respondents. They valued the way that Twitter surfaced new, interesting sometimes challenging material which they could use to inform their professional lives.

In summary, the four ways I identified in which Twitter has contributed to senior leaders' professional development are:

1. **Networking:** by giving them a network of fellow professionals whom they can share the travails of leadership with.
2. **Opinion seeking:** by providing them with a sounding board for their ideas.
3. **News curation:** by giving them timely access to the latest news in education in an easily digestible format.
4. **Serendipity:** by exposing them to new material that they would otherwise not encounter.

These are discussed further in the next chapter.

C.4. Research question 4: How might Twitter affect the professional journeys of school leaders and so impact on the on-going usefulness of Gronn's (1993) career progression model?

There was evident excitement from all the respondents in the study about the potential of Twitter – or the social network(s) that will no doubt supersede it – to further transform the professional development of school leaders. For all their enthusiastic enjoyment of the medium, many of the leaders in this study recognised that as educators active on Twitter they were still a minority. The implication was that as more and more leaders join the medium, notwithstanding the extra 'noise' this will generate, the platform will become yet more useful as a means to connect, to collaborate and to converse on topics of shared professional interest.

@lowry recognised the existence of a generational divide but suggested that this would recede with time, as more and more leaders brought up in a world immersed in digital culture took up post:

There are a lot of heads who are near the ends of their career and can't be bothered or can't see the point of Twitter. Of the more senior heads I can think of very few have meaningful Twitter accounts. But in the future heads will become more comfortable using social media.

Most interviewees made some mention of the way in which Twitter was exposing them to an increasingly varied and interesting diet of information from overseas (another aspect of the medium with no direct parallel in the offline world of professional development). These links were universally thought to be useful in helping further their professional development in ways that might otherwise not have happened, as @evans recounted:

We talk about a filter bubble on Twitter, and I get that, but I also go out of my way to connect with people from different parts of the world, perhaps holding different views. These are people I'd never get to meet in real life. The filter bubble of real life – of geographic proximity, of income, of language, class and culture is far more pernicious

than any bubble you'll find in the digital world. Twitter helps me step outside the bubble.

But, as has already been explained, a few respondents confessed to occasionally feeling overwhelmed by the volume of information coming to them via their Twitter feed. @hollingsworth likened their feed to a torrent from which they occasionally took a drink, but in which they felt they were drowning if they spent too long exposed to it.

Many interviewees mentioned the way in which they foresaw Twitter chats playing an ever more significant role in the lives of school leaders. The ability to ask questions of peers in real time, to share ideas and to feel part of a community was highly valued. For a few this sense of community, and sense of their importance within it, was clearly very significant and likely to become more so. For these individuals the size of their followership, together with the social validation that comes from being reTweeted and/or regularly sought out for advice, enhanced what Gronn (1999) would refer to as their sense of personal efficacy and self-esteem. Most others, however, maintained that they were ambivalent about the need for a large number of followers, though all recognised the potential for Twitter to elevate a select group of leaders to thought leader status. Such thought leaders, it was agreed, would have the potential to shape the future of professional development on Twitter much to their own ends.

There was universal agreement amongst the respondents that Twitter had an important role to play in the lives of school leaders, and those of teachers in general. To this end, respondents thought that there should be more formal training around the use of Twitter as a medium for professional development, though there was still disagreement, in theory as well as in practice, about how Twitter is best used to extract maximum professional value.

A few respondents confessed to a certain degree of apprehension about what might follow on from Twitter. Apprehension was particularly apparent amongst those respondents who had invested a significant amount of time in building up their followership. For these individuals the possibility that Twitter might be usurped by an alternative means of mass

communication represented a significant threat to their accumulated social capital. Nonetheless, there was near universal agreement that training in the use of social media ought to feature in programs seeking to develop the school leaders of the future. Similarly, many thought that Twitter would rapidly attain more mainstream adoption amongst the current crop of school leaders.

Gronn's model, as we have seen, provides an enduringly useful framework for describing leaders' career progression. His discussion of facets of leaders' behaviour including mirroring (see page 42), impression management (see page 39) and, of course, being influenced by 'socialisation agencies' (see page 38) is as relevant now as it ever has been.

In the next chapter detailed consideration is given to the second element of this research question: the extent to which the findings impact the on-going usefulness of Gronn's career progression model.

C.5. Concluding summary

Towards the end of the study an opportunity arose to make direct contact, via the Twitter DM service, with the programmers behind NodeXL. A light-hearted and brief exchange ensued, prompted by some network maps that had been posted on Twitter. The discussion ran as follows:

@NodeXL: Great maps!

@tjjteacher: Your program is amazing! You must have huge brains.

@NodeXL: Many medium sized brains. Working together.

As a pithy illustration of the sentiments that had been communicated by the respondents over the period of a year or so in which their interviews were conducted, it is hard to beat. The exchange aptly summarises the collective stories of the 21 study participants. The senior leaders questioned during the course of this study are all of one voice when speaking of the power of Twitter to connect and to help them in their daily professional lives solve

problems that might otherwise overwhelm them. Both qualitative and quantitative measures support them in this view.

In the next chapter, the ramifications of the various findings are ruminated upon, using the research questions to frame the discussion.

D. Executive summary

D.1. Salient points

- Leaders value Twitter for a number of reasons; reasons that can be loosely condensed as a desire for professional connectedness, an interest in professional challenge and a need for social validation.
- There are concerns amongst some leaders about the blurring of professional and personal boundaries that Twitter represents and the ability of Twitter to strengthen pre-existing prejudices.
- Gronn's reference to socialisation agencies and a strong sense of self as being important in leader formation is borne out by the findings. Indeed, Twitter may have exacerbated the importance of these two things.
- The size of followership amongst tweeps varies greatly, but not so their relative levels of interaction online.
- Social networking has contributed to leaders' professional development by helping them connect with other professionals from around the globe. It helps them form and seek opinions about issues that matter to them and provides a valuable source of up-to-date information, fed to them in easily digestible soundbites. Twitter also facilitates the connection of like-minded individuals through happy coincidence and so exposes leaders to people they otherwise might never have met.
- There was general agreement amongst respondents that Twitter would grow in importance as a professional development tool.

D.2. Implications

- The importance of Twitter in the lives of the leaders questioned is instructive. It suggests that insufficient attention has been paid to the medium by policy makers and those responsible for the training of senior leaders.
- Further discussion is required as to what the practical and theoretical implications of these findings might be.
- Whilst many facets of Gronn's career progression model still hold true, there is scope for the modification, or redesign of the model in the light of the findings to take into account the effect of social media on leaders' professional development.

A. Introduction

This research project has focussed on the role Twitter has played in the professional lives of a small sample of school leaders. In the preceding chapter the findings that emerged from interviews with the leaders, together with evidence gleaned from their respective Twitter feeds and from blog posts, where these existed, were discussed. Explicit reference was made to the research questions around which the thesis is structured:

- a. Why are certain senior leaders using Twitter?
- b. How deep and broad are the Twitter networks of the sampled school leaders?
- c. What are the ways in which Twitter has contributed to school leaders' professional development and career progression?
- d. How might Twitter affect the professional journeys of school leaders and so impact on the on-going usefulness of Gronn's (1993) career progression model?

In this chapter the empirical findings are discussed in more detail. To lend structure to the chapter the findings are discussed using the research questions as key headings.

B. Research questions discussed

B.1. Research question 1: Why are certain senior leaders using Twitter?

In the previous chapter four principal themes emerged from the respondents concerning their use of Twitter. It was found that senior leaders valued the connections that Twitter afforded; that they were often professionally challenged by the medium; that Twitter offered a form of social validation for many; and that many remained attached to the medium in spite, or in some cases because of, the unresolved tensions that it generates.

Indeed, the willingness of leaders to live with this 'unresolved tension' – even to embrace it – mirrors the work of earlier authors such as McCulloch (2011), discussed earlier in the literature review chapter. McCulloch has drawn attention to many teachers' antipathy

towards top-down professional development and their preference for the sort of informal information exchange that Twitter facilitates.

B.1.1. Connectedness

The various ages of the respondents meant that not all of them had had the benefit of Twitter during the accession phases of their careers. But for those young enough to come to this phase post 2006, Twitter added a new dimension to the social, cultural and historical milieu in which their careers had unfolded. Gronn's (1999) model of career progression still holds true for them, but there is clear evidence that the hold traditionally attributed by Gronn, and others, of early socialisation agencies (family, socio-cultural background etc.) may be weakening, only to be replaced by new internet-mediated socialisation agencies. Thus the environment in which leaders' opinions are formed and their values tested has broadened immeasurably. The leaders in this study valued the capacity for Twitter to expose them to different sources of news and opinion.

Twitter is a democratising force. It has, as we saw earlier, a 'distributed and flat hierarchical structure' (Saunders, 2014, p. 2). Most respondents had made use, in one way or another, of its ability to break down barriers between those in power and the general populace.

Twitter had also had the effect of broadening the experience of teachers such that the leaders in this study were no longer exclusively influenced by those they came into direct daily contact with. As we have seen (see page 175), the serendipitous nature of these connections; messy, organic and unplanned, as they are, only served to heighten respondents' appreciation of them. Here we find further validation - if any were needed - of McClay and Brown's (2010) assertion that informal meetings trump formal ones in the minds of most leaders as a means of communicating professionally valuable information.

But here the findings deviate with those that might have been anticipated by Gronn. In the case of the school leaders in this study, no longer are they living out the 'microcosmic' (Gronn, 1999, p. 32) details of their lives trapped by their geographical and economic

circumstances. Instead, even allowing for the hazards of confirmation bias and the filter bubble effect, most are getting professional succour from a far wider array of individuals that Gronn ever anticipated.

For Sir James Darling, Gronn's original subject and the inspiration for his model, his innermost thoughts had to be conveyed in hand written letters sent by surface mail. For today's leaders this is no longer the case; social media has allowed them to share some of the travails of leadership. Furthermore if Hookway (2008) is to be believed (see page 123), many feel able to do so with surprising candour and openness.

Equally, during the course of his career, Sir James Darling had to rely heavily for inspiration on those he had met in person. And the way he conducted himself throughout his professional career was coloured, to a large extent, by his early life experiences. These included, according to Gronn, the influence of 'two spell-binding and brilliant men' who had taught him in the sixth form at Repton. None of the respondents in this study denied the influence of their personal hinterlands on their style of leadership; but what emerged clearly from their accounts was that Twitter had introduced a new dynamic to their professional journeys. In contrast to Darling, for the participants in this study, the influence of direct encounters, some long ago, were supplemented - and in some cases replaced - by the inspiration they derived from their online relationships. The connections Twitter affords thus immeasurably increase the opportunities and influences that leaders are exposed to both in the ascendancy phase of their careers and later on.

We have seen that of the 21 individuals in this study 9 were deputies, a further 10, however, had already obtained a headship position and were therefore in the incumbency phase of Gronn's model. As Gronn (1999, p. 38) explains:

By this stage leaders have developed and honed their public personas, they have learned to project their authoritativeness, and they now seek to give further expression to their quest for mastery and self-realisation by gaining experience through circulating amongst various elite postings and leadership roles.

If this makes it sound as if Gronn assumes that it is all plain sailing for leaders in the incumbency phase, nothing could be further from the truth. Gronn goes on to suggest that many leaders in this phase of their careers wrestle with fears and uncertainties, undergoing something akin to a 'kind of inner psychological tug of war' (1999, p. 39). Here too Twitter has had a role to play in changing the manner in which these inner battles are fought.

The research showed, for example, that respondents valued the connections that Twitter afforded them. As we have seen, one incumbent spoke quite plainly about the way Twitter had taken some of the loneliness out of the job for her – no longer did she have to wrestle with her uncertainties alone (see page 139). Ironically, the connections made on Twitter, mediated via the internet, enabled many of the respondents to feel more, not less, willing to share their problems and to ask for help.

There are instructive parallels with Gronn's identification of 'socialisation agencies' (1999, p. 34) and the role social media seems to be playing in the lives of respondents. Indeed, the need for affirmation – both stated and unstated – was a recurrent theme in the interviews conducted. Jamison (2013) and Andrew (2011) have both pointed to a form of addiction to social validation – or 'affirmation addiction' – which can have negative overtones. Andrew (2011, online) points out that:

1. Affirmation addiction can take on a life of its own and demonstrate one of the key characteristics of true addiction in that addicts crave more and more affirmation for less and less of a 'high'.
2. Leaders addicted to affirmation surround themselves with people willing to provide them with what they crave. In this way leaders run the risk of their judgement being distorted by 'confirmation bias' (see page 156).
3. Those worst afflicted by affirmation bias may find that their leadership becomes compromised. As Andrew points out: 'It's hard to make the tough decisions when you need everyone to like you'.

4. Finally, in its most extreme manifestations, affirmation addicts can end up alienating themselves from the very people whose approval they crave. In fishing for compliments, and surrounding themselves with a cloying band of followers, those same followers can themselves become disenchanted – such that, in Andrew’s words: ‘...the addiction reverses your magnetism and repels the very things you hope to attract’.

Of course no leader questioned admitted to an addiction of this type – to do so would have been to have exposed weakness in a way that Gronn points out is rare amongst leaders. Leaders after all need, more than most, to present themselves to the outside world as ‘unsullied and unblemished’ (1999, p. 36). But there were instances in which – either obliquely or directly – some of the leaders questioned spoke of the sense of solidarity that Twitter gave them and of the way its use had become part of their lives – even to the point of habituation (see page 154). What is clear is that Twitter introduces a new dynamic to Gronn’s conception of ‘socialisation agencies’ – one that can be at once uplifting and destructive.

In focussing on leaders reaching the end of their careers a divergence with the literature emerged. According to traditional conceptions of incumbency (Day and Bakioglu, 1996; Gronn, 1999; and Pascal and Ribbins, 1998) leaders go through a phase of disenchantment towards the end of their incumbency. But in every case respondents reported Twitter as contributing to their level of motivation and to their enjoyment of the post in which they found themselves. The ability to connect with like-minded people, to share and feel part of a group seems to have had some effect in staving off a sense of ennui. Of course, significant caution needs to be exercised in placing too much confidence in this finding. People are likely to be reluctant – even when assured of complete confidentiality – to admit to feeling unhappy or jaded in their work. Additionally correlation does not prove causation – just because this particular group of respondents reported happiness with their lot it does not necessarily follow that this happiness was a corollary of their activity on Twitter (although most reported that Twitter did have a role to play). It is worth drawing attention to the fact

though that in the group of educators who participated in this study – including several who had been incumbents for some time – Twitter was cited as important in staving off disenchantment and helping them remain fresh and engaged.

This study has focussed principally on the active leadership phases (accession and incumbency) of leaders' careers. However, two of the respondents in the study happen to have recently moved on from school leadership and so it seems churlish not to deal, if only briefly, with what they had to say about their respective divestitures.

Although Gronn (1999, p. 39) cites 'ageing, illness, lack of fulfilment or incapacity' as the reasons leaders typically divest themselves of office in the case of the respondents in this study none of these factors were the main drivers. Indeed in both the cases in question Twitter itself played a significant role in their move away from direct involvement in schools. Both individuals had built up large followings on Twitter, and had begun to make connections with organisations outside their immediate domains. These connections introduced them to new possibilities for employment and so it was that they decided to change their career trajectories.

In both instances their continued engagement with Twitter - and the sense of connectedness it gave them - was being used as a springboard to forge new contacts and business relationships. In this way they both attributed Twitter to their being able to earn a living outside mainstream education. Neither reported the feelings of 'lost potency and influence' that Gronn (1999, p. 40) describes as 'almost certain'. Twitter, and the connections they had made through it had, it seems, cushioned their sense of loss. Whereas for many leaders their sense of security and self-worth has come from a circle of colleagues and acquaintances at work this is less true of leaders in the social media age. For the two in this study their social circle and sense of self-worth did not only arise from the influence they commanded in their own institutions. Thus the sense of loss, which Gronn (1999, p. 40) describes as 'akin to grief' was markedly reduced.

B.1.2. Challenge

Twitter also had an important role to play in fostering the interplay of vision, values and influence that we saw (see page 13) Bush and Glover (2003) identify as foundational to strong leadership. Not only was Twitter used by many respondents to publicly endorse a set of values held by their institutions and, by some, as an informal marketing channel; often the medium was used to help organise their thoughts about a certain issue. As we have seen, many reported relishing the way the medium challenged them intellectually in this way.

This was particularly true of respondents who used Twitter to link to blog posts in which they were able to indulge at greater length in public reflection. Writing at the end of the #28daysofwriting Twitter challenge in which teachers were encouraged to share their thoughts online daily, @evans wrote:

I've loved writing every day. I've loved the messages from friends old and new 'what do I write?' as well as the encouragement from others about writing. We talk about nurturing our pupils, but I've felt so nurtured in that sense this past month.

What comes through strongly here is how cathartic the experience of sharing online can be. Sharing, it seems, forces users to organise their thoughts – once posted on Twitter they must be prepared to defend them in the court of public opinion. In this vein, in a post listing the things she feels Twitter has given her, @bowd, is explicit about the power of putting things in writing to help organise her thoughts. She explains that Twitter (and her associated blogging) has allowed her to:

...put words to challenging or difficult ideas or concepts I wouldn't have discussed in any other forum.

In important ways then Twitter has, for some educators at least, begun to change the experience of incumbency. It is instructive here to look back at Dixon's model of social media engagement (see Figure 22 on page 82). Dixon is very clear that in order to get the maximum benefit from social media leaders need to move from passive to active

engagement. Amongst those studied there were differing levels of engagement with Twitter, but the general tenor of feedback from respondents would seem to support Dixon's conception of a hierarchy of engagement. Users recognised that the more they put in, the more they got out. In this sense there are parallels with the SAMR model too: Twitter can be used simply as a source of information in which users play the role of passive recipients, or it can be used more imaginatively.

At its most basic level tweets are seen to be *substituting* or *augmenting* activities that leaders have always been engaged in: reading the news, digesting government documents opening – and on occasion responding to – communication. But to get the most out of Twitter leaders reported having to be more active in their engagement – in the SAMR formulation doing so leads to *modification*, *redefinition* and, ultimately, *transformation*. Twitter activities that fall into this realm – that provide a new type of engagement that was not previously available to leaders – include things like link posting, hashtag chats or @mentioning educators who work in entirely different contexts. By involving themselves in such activities - taking full advantage of Web 2.0 technologies - leaders open themselves up to potentialities worthy of the 'transformational' epithet adopted under the SAMR typology.

Dixon's (2012) model also envisages a four stage hierarchy with ever more radical and transformational activities featuring in the progression. By training its attention determinedly on social media – in a way that SAMR does not - Dixon's model lends sharp focus to the discussion. What Dixon's model lacks, though, is reference to the way leaders' engagement with social media changes over time, as they move through the various stages of their career. In Dixon's conception the level of social media engagement for any given leader can vary. But implicit in Dixon's model - much as in the SAMR model - is the suggestion that deeper engagement leads to better outcomes. In this study, though, level of engagement was seen to change not only in tandem with users' facility with Twitter but also as a given leader's career progressed. There is potential here, then, for devising a revised model of social media engagement amongst senior leaders; one that recognises variances in

the level of engagement, along SAMR/Dixon lines but also that incorporates temporal variances in engagement that mirror the career stages identified by Gronn.

In this study differences were seen to emerge between the way leaders at various stages of their careers used social media. A hierarchy of engagement emerged that bore comparison with the SAMR model. A few leaders described using Twitter for traditional tasks in a way in which the medium could be said to be merely a *substitution*: swapping one way of doing something for another. Others, though, had incorporated Twitter into their professional journeys in such a way that it could be said to have truly *redefined* the way that they experienced career progression.

A revised model, incorporating elements from the work of Dixon (2012), Gronn (1993) and Puentedura (2010) might therefore provide a framework for envisaging the career journeys of senior leaders in the social media age. In recognition of the fact that this model is more a fusion of other authors' work than something new in the truest sense of that word I have called the model the 'PDG model', adopting the first letter of each of the contributory authors' surnames. The PDG model, therefore, is an attempt to build on the insights others and to meld them into a coherent whole. The putative PDG model is shown in Figure 38.

As its name suggests, the PDG model unashamedly borrows important insights from the work of others. Dixon's conception of leaders as progressing through a hierarchy of engagement is drawn upon (see Figure 22 on page 82) and feeds nicely into the hierarchy of engagement described in Puentedura's SAMR model. And these differing levels of engagement are happening all the while at a given time and place in a leader's career journey – a journey charted and described in detail by Gronn. Thus the multiple overlapping elements of these authors' work – never before seen as complementary – are ripe for fusion into a model that draws on the insights of each.

In the PDG model the career trajectories of school leaders are seen to progress along a continuum, from formation to divestiture. As they do so leaders can be placed, depending on the level of sophistication they bring to their use of social media, at various levels on the

model. Thus those in this study who were still in the formation stage of their careers, but who had not yet embraced the full potential of Twitter, would be placed in the bottom left hand corner of the model; those maximally engaged but in the divestiture stage of their careers in the top right hand corner with all the various other permutations appearing somewhere in between.

By contextualising social media engagement in this way, set against career progression, the integral role that it now plays in the lives of leaders is underscored. The important work of Gronn in contextualising leaders' career journeys is drawn upon heavily in revised form. Twitter has served to deepen and strengthen the significance of the insights afforded by Gronn's model, much in the way that was suggested it might have done in back in Chapter 2 (see page 42). Social media engagement is seen as playing a role in the lives of leaders throughout their careers – with its importance and effect being determined by the enthusiasm with which tweeps embrace it.

In order to get the most out of social media leaders need to ensure that, at whatever stage of their careers they find themselves, they strive to exploit its 'transformative' powers. In order to do this they need to attempt to move beyond consumption towards active engagement, collaboration and advocacy. Only by doing so will they have attained the heady heights of social-media-literate leadership of the sort envisaged by Diesner and Newton (2013). The real value of Twitter - in providing challenge and new ideas to incumbents as they progress through their careers - is only properly experienced through determinedly active engagement at each stage. The message is clear: to get the best out of social media, leaders should endeavour to critique their use of the medium and ensure that it extends beyond substitution and modification to augmentation and redefinition. If leaders are only using social media as a quicker and more convenient alternative to Sir James Darling's telegrams, they are missing the point.

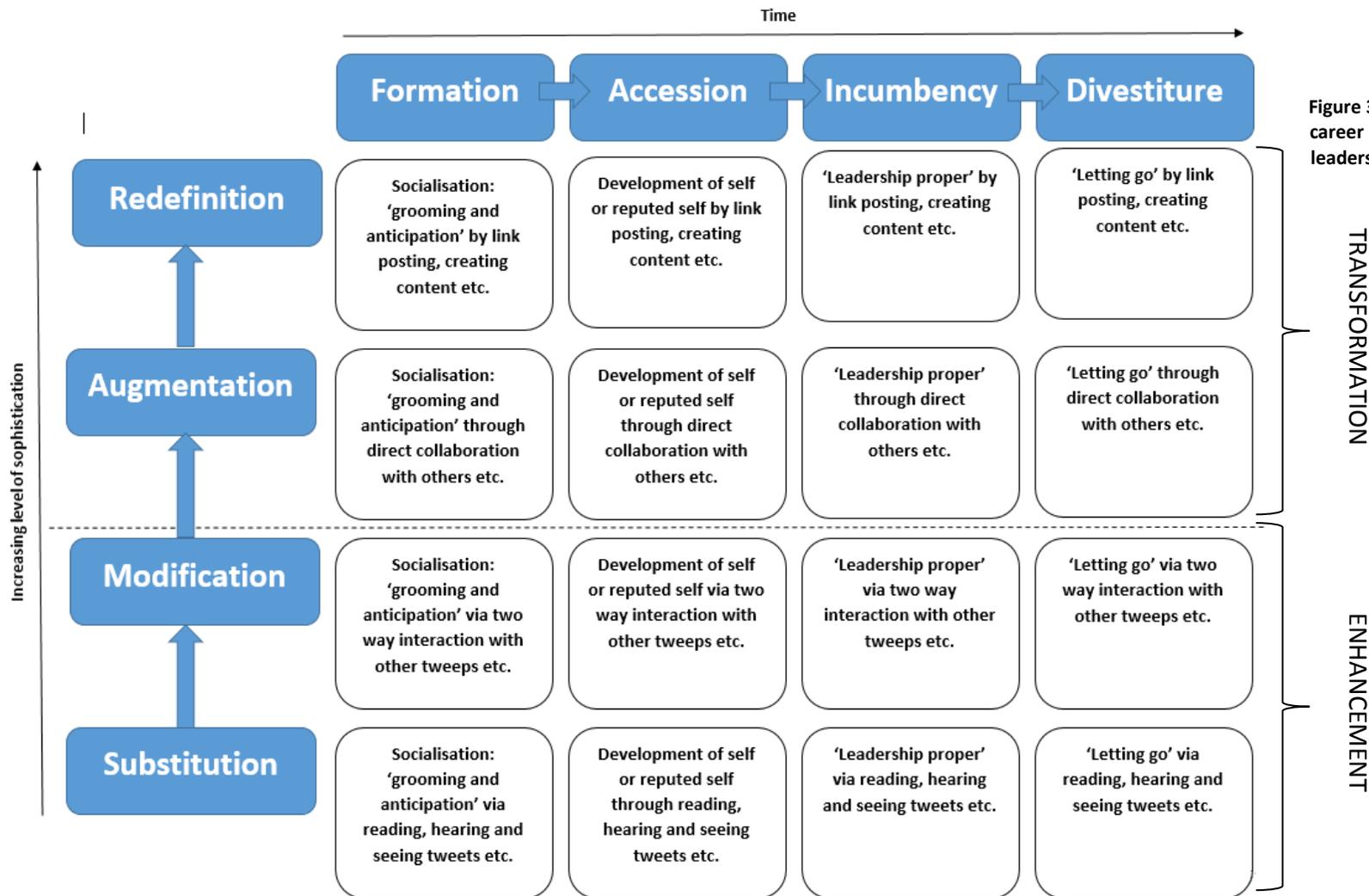


Figure 38, The PDG model of career progression for senior leaders in the social media age.

B.1.3. Social Validation

Of the 21 candidates interviewed in the course of this study, 9 were deputies or assistant heads and therefore, it might be argued, fell into the ‘accession’ phase of Gronn’s model. Gronn (1999, p. 36) identifies this stage of career progression as being:

... a period marked by various forms of public display by leadership rookies – analogous in human terms, perhaps, to the behaviour such as wing-stretching and preening in the animal world – which is intended to alert potential role sponsors, gatekeepers and talent spotters that one is worthy to be acknowledged and taken into account, and to impress those sitting in judgement by reliance on various forms of publicity and impression management that one is ready, willing and able to lead.

Sure enough, there was clear evidence that Twitter has introduced a new way in which the ‘wing stretching and preening’ envisaged by Gronn is carried out. As we have seen (see page 150), social validation is an important element of what motivates senior leaders to use Twitter in the first place. Some of the tweeps in this study were quite explicit about their use of Twitter to further their careers – though using Twitter in this way was not only confined to those in the accession phase.

The findings mirror the earlier findings of researchers (like Jamison, 2013 and Andrew, 2011) who have identified a form of addiction to social validation amongst some social media users. Just as Gronn highlighted the time and effort many leaders expend on cultivating their leadership personas, so it seems some leaders have become engrossed in tending to their social media presence. The sort of mirroring behaviour identified by Gronn, in which leaders source their professional identity from the character traits projected onto them by their followers is exacerbated by the mechanics of Twitter. Leaders can become trapped in a vortex of their own making, surrounded by a coterie of followers who agree with them, and affirm all their ideas and character traits, no matter how alarming. To make matters worse the ‘majority illusion’ (see Figure 25 on page 91) can give a distorted view of reality for leaders and so uncommon views held by socially influential individuals can appear more mainstream than in fact they are.

Confirming Gronn's observations about the various phases of a given leader's career, respondents were all aware that their public pronouncements on Twitter had the potential to be seen by both current and future employees/employers. This could explain, at least in part, why many shied away from becoming 'meformers' (see page 78), indulging only in self-publicity. Self-publicity of this kind might have called into question whether their career reputation up to this point in time is 'unsullied and unblemished' to use Gronn's (1999, p. 36) formulation. Respondents themselves reported to being put off by tweeps who were 'always on send' (see page 159) and in so doing added weight to the assertion of Andrew (2011) that people seeking to surround themselves with an coterie of adoring followers could instead end up alienating the very people they had hoped to befriend.

Gronn goes to great lengths to highlight the importance to leaders in the accession phase of their careers of a strong sense of self-belief. And, as we saw in the Literature Review chapter (see page 72), the importance of self-belief has been further highlighted by authors such as Rhodes (2012). Rhodes argues forcefully that a strong sense of self needs to be actively managed and fostered within aspirant school leaders. Here too the findings of this study strongly support the extant literature in the field. For all of the respondents, not just those in the accession phase of their careers, Twitter played a role in bolstering self-belief. There was much evidence that is keeping with Rhodes' (2012, p. 9) assertion that:

...active management to raise self-belief can have positive effects upon success in socialisation and belonging, perseverance in the face of challenges, successful identify transformation and practical and emotional resilience to allow the subsequent enactment of leadership.

For example, there was plenty of evidence to suggest that respondents had been grateful for the affirmation given to them by the PLNs on Twitter. Indeed, Twitter's value often went further than mere affirmation. It included respondents receiving specific help and advice to speed them on in their careers. In this sense respondents valued their PLNs considerably. Here is direct support for the contention that leaders value Twitter for the way in which it

affords them access to a professional network (see the earlier discussion of this point on page 171). As Gronn (1999, p. 181) makes clear:

...one of the most common experiences with which upwardly mobile leaders are required to come to terms with is a growing sense of isolation or loneliness.

And yet in this study Twitter afforded leaders with a network of colleagues to whom they could turn for support – emotional and professional. Connections with individuals outside their own immediate organisations ‘of equivalent status’ were seen, as Gronn predicted, to be vital to interviewees’ sense of self-worth.

B.1.4. Unresolved tensions

The final theme that emerged in relation to this research question was the issue of tensions wrought by Twitter. In summary, the following concerns surfaced during the course of the interviews:

1. The potential for abuse or ‘trolling’ on Twitter
2. The addictive nature of Twitter and the need to manage this
3. The risk posed by ‘homophily’ or surrounding yourself with like-minded people
4. The associated polarisation of debate that can arise from homophily effects
5. The dangers attendant with using Twitter in school for both pupils and staff

It might be tempting to view many of these concerns as being the sole preserve of the social-media age. In fact nothing could be further from the truth. If added reassurance were needed that Gronn’s model was the right lens through which to map the trajectories of leaders’ digital lives it comes from his discussion of the self-destructive tendencies that can befall some leaders:

...what begins as benign feelings of success stimulate additional feelings of success which, if the confirmatory imagery being mirrored back in the responses of their followers, peers and colleagues is interpreted as adulatory, can, in turn, fuel an unconscious fantasy of invulnerability, or even invincibility. When then happens

leaders tend to be complacent: they attend only to such feedback as confirms what they already know or prefer to believe about themselves and the rightness of their actions... (Gronn, 1999, p. 80)

Here, in stark relief, and well before the advent of Twitter, is a passage that could have been written about the very dangers that many respondents in this study sought to draw attention to. Twitter, with its enormous potential for good, also has the power to fan the flames of hubris.

As we have seen, the medium, if not managed carefully, allows users to surround themselves with people of a similar socio-cultural outlook (see page 94) and can thus help foster an unhelpful group-think. It is not difficult to see how a strong minded leader could be flattered to deceive in an even more rapid and destructive fashion than the one envisaged here by Gronn:

...they become error-prone and, as the responses of the emperor's retinue in the fable The Emperor's New Clothes suggest, those in their immediate circle soon learn that their own survival depends of feeding their superiors on what they want to hear (1999, p. 80).

Here is a salutatory lesson: if leaders are to embrace the 'transformative' (see Figure 38) power of Twitter, as I believe they should, they must be wary of its dangers. This includes being aware of the baked-in biases that the platform supports algorithmically. Indeed, users may be well advised to seek out the very 'unresolved tensions' that @lambkin alluded to (see page 159) – only by doing so might they be able to avoid the fate of the emperor.

Many leaders in this study were not just using Twitter for their own personal enrichment, though. Several were actively encouraging the use of the platform by their subordinates and/or embedding its use within their organisation itself. There seemed to be some haziness here amongst respondents – an 'unresolved tension' – as to which of the many constituencies that make up a school Tweets were directed towards. In some instances parents were seen as the main audience, in others the wider community of educators, and in yet others pupils. Unwillingness amongst most leaders to restrict themselves to one

constituency in their online social output, coupled to the public nature of the medium, led most leaders to be circumspect on their timelines.

Twitter has exacerbated, then, the extent to which leaders are under public scrutiny as they go about their roles. The extent to which leaders are subject to ‘...increased visibility, a greater likelihood that one will be the object of scorn or criticism, and yet all the time the feeling of being constrained to pretend that all is well and to try and keep up appearances’ (Gronn, 1999, p. 182) is deepened by the voyeurism that a life lived online invites. For all that the PDG model (Figure 38) of social media leadership invites readers to look at deeper online integration as something to aim for, it is important to note that social media engagement it does have its drawbacks. Leaders need to devise strategies to cope with these. At the simplest level, withdrawing from the medium from time to time to regroup, much as @holloway explained she did occasionally (see page 161), seems sensible.

B.2. Research question 2: How deep and broad are the Twitter networks of the sampled school leaders?

Gronn (1999, P. 32) noted that leaders:

...live the bulk of their early formative years and beyond in civil societies within nation state boundaries in which they are socialized according to cultural assumptions and values which are [] not of their choosing.

Whilst few would argue that this is not still the case, this study has shown that the influences on leaders’ lives are expanding rapidly in their breadth and depth. For the latest crop of leaders, who have grown up surrounded by online influences, the strength of local influences must, surely, have reduced.

It might be assumed from earlier discussions that Twitter is populated by groups of users who all know each other, and who follow each other back in a reciprocal arrangement resembling a digital gentlemen’s club. Certainly interviewees were aware that this was a possibility and, as we have seen, were wary of homophily effects. The data, incomplete and

tentative as it is, however suggests otherwise (see Table 18 on page 167). If school leaders are surrounding themselves with like-minded people they seem to be like-minded people who often do not know each other. This is reassuring in that it suggests that homophily effects are not crippling the medium's potential to challenge and foster new and unusual links amongst leaders.

There are practical implications of this fact for school leaders. Firstly, it suggests that Twitter is an excellent place to go to if you are seeking to make new connections with people who fall outside your immediate professional network. Gronn (1999, p. 38) makes great play of the importance of networking for leaders: 'alignments and working agreements are struck with patrons, sponsors and strategically positioned organisational and tribal elders'. Twitter enables leaders to cast the net wider than they otherwise might have been able to.

My own personal experience of this (see Figure 36 on page 169) is one thing, but it is bolstered by the experience of many respondents. Take, for example, the use @mulholland put her Twitter network to in publishing her crowd-sourced book, or the personal help and advice that @parry reported getting through her Twitter connections. If there is a 'So what?' question to be answered here in relation to the findings it is that senior leaders who are not making use of online social networking are missing out on some very valuable opportunities.

This discussion relates back to my model of Twitter engagement over time (see Figure 38 on page 194). Those with the deepest and broadest networks tend to be the most engaged. The most engaged are those who contribute as well as consume; those whose online existence extends from awareness through to advocacy (see Dixon's model on page 82). As in life, so with Twitter - the more you put in, the more you get out.

There is an interesting aside here in a discussion of Dunbar's number. Dunbar's number, as we saw in the literature review chapter, places a notional upper limit on the number of people a given individual can be meaningfully connected to. Dunbar suggests that individuals can sustain, at a maximum, between 100 and 200 connections. And yet in this study tweeps were found to have follower counts that in almost every case far exceeded

this range. In @noad's case over 90 thousand followers had been amassed, with 13 other respondents having over 1000 followers (see Table 14 on page 136) These figures are misleading though, of course. Being followed, or even following, is one thing, interacting with those followers in a meaningful way is quite another. Table 16 (page 164) is far more instructive. Even though there is a 414-fold differential in follower count between the most followed and least followed individual in the study sample (90,700/219) the differential in discrete mentions on Twitter is only 2.15 (215/100). Meanwhile the variance within the study group between the maximum and minimum number of followers was huge (see Table 17 on page 165) whereas it was relatively small when the number of two-way conversations of each leader were enumerated. It is possible, therefore, to have a follower base of over 90 thousand tweeps and yet interact only marginally more than someone with a follower base of barely more than 200.

In so far as @mentions provide evidence of meaningful two-way discussion (surely a defining characteristic of a purposeful relationship) this is instructive. What is even more arresting is that the figures appearing in Table 16 fit so closely within the bounds outlined by Dunbar (1992). An important corollary arises from this: although some leaders' followings have reached celebrity proportions they actually actively interact with a surprisingly small number of followers on a day-to-day basis. There does indeed seem to be a cognitive upper limit on the number of fellow tweeps leaders can sustain active, two-way relationships with. So whilst, as we have seen, authors such as Borema (2011) and Smith (2007) point to the breakdown of one-to-many models of professional development delivery, there may be an upper limit to the many-to-many models that they see as the natural replacement.

When I first uncovered the apparent ceiling on reciprocal connections I was quite surprised by it. I had rather expected the research to show the capacity of Twitter to massively expand the number of active connections between teachers and leaders. Such is the pervasiveness of the culture on Twitter that more followers means more engagement, more social cachet that I had taken it as read that a large followership would equate to a deeper network. The

research points clearly to a more fuzzy link between a user's follower count and the depth, if not the breadth, of their network, however.

What is the implication of this? The take-home message for me is that users should be more concerned about the *quality of their connections* as opposed to the total number of them. Collecting followers as a task for its own sake will not necessarily increase the number of meaningful day-to-day conversations a leader has on Twitter and these, after all, are the ones that leaders most value.

B.3. Research question 3: What are the ways in which Twitter has contributed to school leaders' professional development and career progression?

We saw earlier (see pages 171 - 175) that there were four main ways in which the leaders in this study identified Twitter as having helped them professionally:

1. Networking
2. Opinion-seeking
3. News curation
4. Serendipity

But to what extent has Twitter been *transformational* in the manner envisaged by Puentedura (2010)? Has Twitter brought about a radical change in school leaders' professional development, enabling the previously unimaginable? Or have the changes been merely incremental? It is my contention that the results of this study point to an emphatic 'yes' being the answer to the former of these questions. The data points clearly to the role Twitter has played in bringing about significant, long-lasting and change to the way leaders develop. In this sense, Twitter has *transformed* leaders' career progression in ways that simply could not have been envisaged by Gronn, still less so by Darling.

Sure, there are aspects of leaders' use of Twitter that are merely a reworking of the old ways of doing things. Where Darling may have used a letter or a telephone to communicate

with fellow heads, Twitter now allows for digital equivalents. But there are plenty of ways in which Twitter has enabled tasks and activities that take leaders' career journeys to a whole new level and thus, in a very real sense, transform them. Instantaneous, free trans-continental communication is one aspect of Twitter's functionality that would have been unthinkable to Darling ensconced in Australia in the dying days of Empire. The ability to talk to large user groups synchronously and asynchronously (through, say, hashtag chats) is also something that has transformed leaders' access to timely advice or debate with like-minded individuals. 'Silicon-valley-style disruption' (Gronn, 1999, p. 30) has indeed transformed the passage of senior leaders' careers in ways that extend beyond the substitution or augmentation that constitute the lower rungs of the SAMR ladder of progression (see page 83). Twitter has modified and redefined the way in which senior leaders' careers pan out and so, properly adopted, is worthy of placement at the apogee of the SAMR schematic.

B.3.1. Networking

The backgrounds of the leaders in this study were extremely varied – they had all had very distinct and unique 'formation' phases, to borrow Gronn's phrase. And yet Twitter had allowed them to connect with people who, in the past, would normally be completely beyond their frame of reference. There is a possibility here that the heavy hand of culture, history and society which Gronn envisaged as impacting so emphatically on the career trajectories of leaders has been somewhat leavened by the 'distributed and flat hierarchical structure' (Saunders, 2014, p. 2) characteristic of interactions in the online world.

Could it be, therefore, that Twitter might accelerate social mobility and go some way towards breaking down the barriers that have traditionally existed between the leaders and the led? Whereas McLay (2008, p.356) found similarities between leaders according to their 'generation and class', much as Gronn (1993) had done, this study has uncovered signs that Twitter is changing things. Barriers to entry on Twitter are so low as to be effectively non-existent. Similarly, conversations conducted behind the safety of a computer screen reduce the extent to which gender, race, appearance, or a natural disposition to shyness, act as barriers to getting the information and contacts needed to progress in a career. This might

lead us to conclude that Gronn’s schematic of leadership is ripe for modification, as in this reworking:

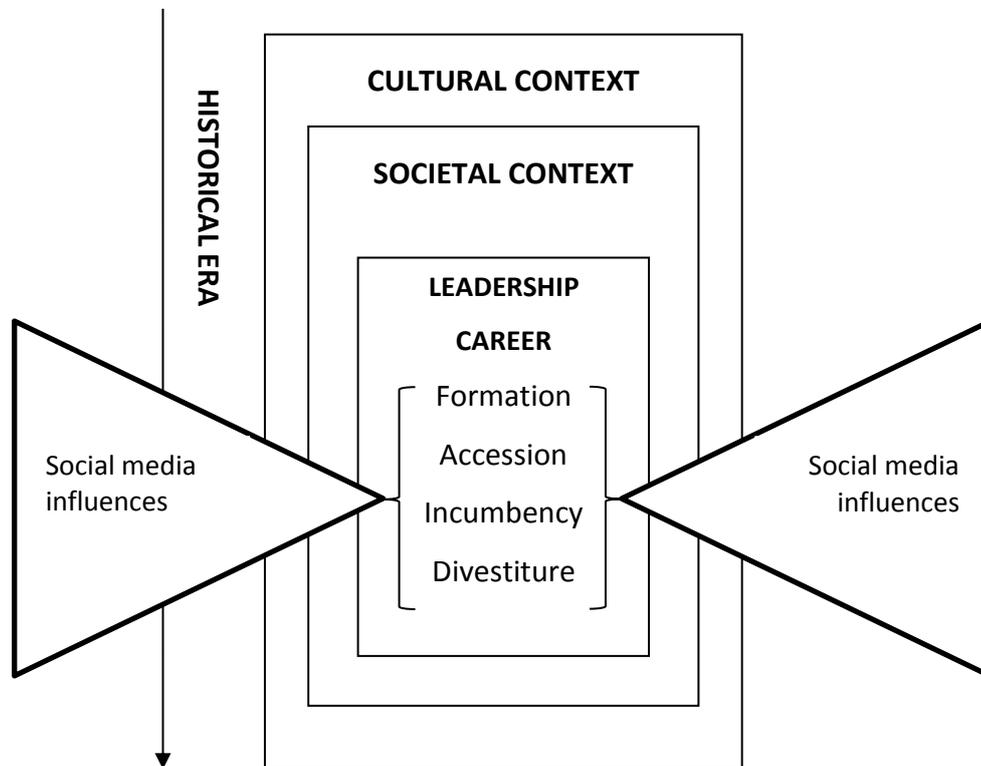


Figure 39, A reworking of Gronn's (1993) career leadership model for the social media age.

Here Gronn’s 1993 model is adapted to show social media influences cutting through the historical, societal and cultural context of leaders’ lives – riding roughshod over them in fact. The influence of social media is shown as coming from the left and from the right, symbolising the extent to which leaders may be influenced, particularly if they seek to be, by people with outlooks that may be sharply at variance with their own. Significantly there is no interference from the top down or from the bottom up; on Twitter, as on other social networks, traditional hierarchy structures are diminished if evident at all.

The suggestion is that Twitter has introduced a new dynamic to the neat progression envisaged by Gronn as characteristic of leaders’ career progression. Today’s leaders have

access to a medium that disrupts conventional hierarchies and ‘encourages horizontal collaboration and unscripted conversations’ that pay little or no regard to long-established chains of command (Deiser and Newton, 2013, online). The stilted ‘paternalistic, class-ridden and imperialistic’ milieu in which Sir James Darling’s career unfolded (Gronn, 1999, p. 32) is the antithesis of the fast changing, connected environment in which the leaders of the future will have to operate.

B.3.2. Opinion-seeking

We saw in the previous chapter that leaders value Twitter for its ability to serve them the opinions of others. On the one hand leaders seem to use the medium in an uncomplicated fashion to seek alternative opinions, in some cases deliberately sounding out those who might disagree with them in order to expose themselves to alternative viewpoints (see pp. 143 - 150). But several leaders also acknowledged that they had allowed Twitter to ossify their pre-existing views by surrounding themselves with like-minded followers.

Syed (2015) has popularised research showing the lengths to which leaders will go in order to avoid what he terms ‘cognitive dissonance’. Leaders, the argument goes, often settle on a way of thinking early in their careers. They then actively seek out confirmatory sources of information to bolster their opinions as their professional lives play out. Twitter’s ability to connect individuals with similar viewpoints - no matter how outlandish or unorthodox - thus has huge potential to exacerbate the self-righteous sense of rectitude that some leaders possess in relation to themselves. This is a sense of rightness that hardens because, not in spite of, contradictory evidence. Twitter’s ability to serve up a ‘majority illusion’ (see page 91) can certainly make things worse.

Thus Twitter unleashes powerful forces of social validation that impact directly on leaders’ sense of self. There are very strong parallels here with the work of Gronn who identified in leaders an almost obsessive preoccupation with how they might appear to others. Gronn notes that leaders often indulge in mirroring behaviour in which they ‘look at themselves constantly in relation to others’ (1999, p. 68). Leaders are therefore acutely aware of how

they appear to others and with good reason, because according to Gronn: ‘...our actual selves amount to what people care to impute to us’ (1999, p. 71). Indeed Sir James Darling, the subject of much of Gronn’s research, seemed to understand this, writing a poem in which he includes this stanza:

*Be what I seem to be.
Fear not lest others see
What I aspire to be,
Til that becomes the real me (quoted in Gronn, 1986, p. 40).*

In a pre-Twitter age Darling is advising his readers to align the perceptions others have of them with their own aspirations. There are clear parallels to be drawn here with the work of authors such as Deiser and Newton (2013) who highlight the importance of creating a tangible brand – what Gronn calls a ‘social self’ – to communicate to the world and provide the framework for a leadership journey.

To return to Gronn’s model of leadership development (see page 44) the sense in which leaders are influenced by ‘socialisation agencies’ has become even more pronounced in the social media age. Leaders use followers – real and virtual – to inform their sense of self and identity. Whether they admit to it or not (and several in this study did make an admission) leaders enjoy affirmation. Twitter can and does provide it for them.

B.3.3. News curation

For Sir James Darling, working during the 1930s, news came in the form of printed material, or via telegrams. In his own memoirs he remarks that he had very little to help him when he began the headmastership of Geelong Grammar. As he explains, his predecessor:

...left almost no files except for a few meagre and virtually undecipherable notes on scraps of paper. Thus I was given very few answers...(Darling, 1968, republished in 2006, p. 77)

Darling mentions, however, that during the early days of his headmastership he used to write regularly to his predecessor about his troubles and plans. Tellingly, Darling is

disarmingly honest about his lack of experience and the lack of educational expertise he amassed even during the course of a long career in education. As we have seen, Gronn (see page 44) refers to 'reference groups' and 'socialisation agencies' as being critical to the formation of leaders. These influences are critical conduits for the news and inspiration that leaders need. In Darling's case though it seems he was fed very little:

My knowledge of educational theory was, and is I suppose, very slight, and most of it has been acquired empirically (Darling, 1968, republished in 2006, pp. 74-75)

The advent of the internet has changed things dramatically for today's school leaders. Many complain of a surfeit rather than a dearth of information with Twitter being used by some to filter out the best bits. Leadership in a social media age becomes a matter of choosing who to listen to and who to ignore, whose advice to take and when to turn the information stream off. For some, social media influences are invasive and hard to turn away from, something that I have tried to capture in my reworking of Gronn's leadership succession model (see Figure 39 on page 204).

It is clear, though, that when it comes to news curation leaders need to be particularly conscious of the types of news that they are consuming. An awareness of the mechanisms of the majority illusion and of the unspoken fear of cognitive dissonance might help leaders to consciously monitor the feeds they are consuming, following the example of some of the more measured users of Twitter in this study. To fail to do so opens up the possibility that leaders will become less informed, rather than more so, as a result of the new social technologies.

B.3.4. Serendipity

In discussing the selection of school leaders for their role, Gronn is at pains to stress the part that chance plays:

...the aspirant leader has to keep guessing what the rules are by which the selectors are playing as she or he stumbles along (1999, p. 146).

And he goes on to explain how for James Darling a serendipitous meeting of eyes during his interview for the headship of Geelong Grammar sealed his appointment. The implication is clear: chance and luck have a role to play in leaders' professional journeys. Today, in the social media age, school leaders can have a far wider array of acquaintances and so, as we have seen, the chance of a serendipitous meeting that leads to a material change in a leader's career is greatly increased.

Throughout the previous chapter (see pages 175 - 178, for example) we saw numerous examples of respondents speaking warmly of the power of social media to facilitate new and mutually beneficial connections. Thus Twitter has the potential to significantly influence - to *transform* in the parlance of SAMR – senior leaders' professional journeys. Here again, Figure 39 highlights the way in which social media has super-charged the influences Gronn envisages impacting on leaders' careers. Where Darling's social circle, though big, was constrained in size by the limitations of the technologies available at the time, such restrictions are far less evident for today's leaders.

Serendipitous meetings, of course, become far more likely for those actively engaged on the medium – for those creating as well as consuming. To refer back to the PDG of social media engagement (Figure 38 on page 194) leaders need to be aiming to place themselves in the augmentation/redefinition boxes at whatever stage of their careers they find themselves. By doing so, the evidence of this study is clear, leaders will greatly increase the depth of their exposure on Twitter and so increase the likelihood of meeting interesting people to add to their PLN.

B.4. Research question 4: How might Twitter affect the professional journeys of school leaders and so impact on the on-going usefulness of Gronn's (1993) career progression model?

I am aware in coming to discuss the role that Twitter might come to play in the future of school leadership that the platform itself may fall out of favour. If Figure 5 (see page 30) teaches us anything it is that social media platforms rise and fall. Many – even after only a

short lifespan - cease to exist. In my own personal network there have already been murmurings³⁶ that the writing is on the wall for Twitter. The other alternative, though is that Twitter reaches the 'plateau of productivity' envisaged by the Gartner hype cycle model (see Figure 6 on page 33). In doing so it might become an integral part of school leaders' lives as it reaches maturity.

It seems certain that more will join before any putative downswing. There are no reliable figures for the number of UK teachers on Twitter, but @evans has come up with an estimate of 27%, arrived at, as he explains on his blog:

I aggregated six large UK Education Twitter followings. I then removed duplicates. I took a sample of those left and worked out which were companies (pretty easy), and which were non-UK (devilish). I removed this percentage from the total. I rounded the result to 130,000, or 27%.

My own feeling is that @evans' estimate is a bit too high. In my own school, as in others, I have visited the number of teachers self-identifying as active on the medium comes out as between 5-10%. But no matter – the point is there are still many more to join before saturation is reached.

What seems certain as the number of teacher and school leaders on Twitter increases is that certain individuals will become increasingly influential. Popular Twitter accounts can snowball in size as their material reaches a larger and larger audience. This sets the stage for a new breed of 'super-teachers/leaders' who will wield huge influence in the on-line space. At least one of my respondents (@noad) has seen this start to happen to his own account. His posts, both on and off Twitter, are reaching an ever-expanding audience and he is finding himself starting to be able to influence decision makers.

³⁶ For example this article, entitled: *Why Twitter is dying and what you can learn from it*, was doing the rounds recently in my PLN: <https://goo.gl/UNHx1H>

Herein lies both excitement and danger. Influential tweeps – the ‘Twitterati’ – will increasingly be able to shape public opinion. There are already signs that they can take up a cause and make it run – creating what we might call ‘teacher memes’. Such memes have the power, through mechanisms such as the majority illusion, to silence dissent. The larger the following, the greater that power. And positive feedback loops are likely to make certain individuals and their ideas yet more powerful. It is possible to conceive a dystopian future for Twitter in which the medium simply becomes an outlet for confirming entrenched views. But it need not be like this. Leaders and teachers have a responsibility to shape Twitter in the future such that it retains its instructive powers – its ability to educate, to challenge and to connect.

In order to avoid a dystopian outcome leaders need to be shown both the potential and the dangers of a life lived online. It is worrying, for example, that responsible social media use does not feature as a compulsory element in the National Qualification for Headship (NPQH). It should do. Leaders are living in an increasingly connected world; the leaders of the future will need to be given the tools to be able to use this social world to their professional advantage.

Discussion of Gronn’s model of career progression has infused the earlier sections of this chapter. Here it suffices to say that Gronn’s model does have on-going usefulness; its focus on socialisation agencies outside a given leader’s immediate surroundings describes well the impact that Twitter has had on the lives of many of today’s leaders. But in modifying and augmenting the model slightly along PDG lines (see Figure 38 on page 194) its usefulness can be extended yet further.

C. Conclusion

This chapter has attempted to draw together the strands of evidence that emerged from the research relating to each of the four research questions. This evidence has been discussed using the framework provided by Gronn (1993) in his biographical study of the Australian headmaster Sir James Darling.

Though Gronn's model took shape in a world that had yet to experience social media, many elements of it remain relevant today. Indeed, Gronn's (1993) identification of various types of 'socialisation agency' and 'reference groups' as significant in the lives of leaders, particularly at the formation stage, look prescient. Gronn must have sensed change afoot because 'consciousness shaping media' is conspicuously absent from his 1993 schematic of leader formation, but has been added by the time he republished the diagram again in 1999 (see Figure 14 on page 54). This research shows that influences outside leaders' geographically close circle of friends, peers, mentors and family are, for some leaders at least, becoming increasingly significant.

The PDG model of career progression in the social media age has been proposed that builds on the work of Gronn, bringing his model right up-to-date (see Figure 38 on page 194). In the PDG model leaders are seen as operating along a continuum of social media engagement at any given time in their careers. In order to get the most out of the new social tools and become truly 'social-media literate' in their leadership the model invites leaders to think critically about their engagement. Are they simply paying lip-service to a life lived online and so only using social media to *substitute* or *modify* the very same leadership tasks that leaders have always indulged in? Or is the change in their behaviour more profound? Are they, in fact, embracing social media in its fullest sense to *augment* and *redefine* the act of leadership and so breaking the bonds that used to constrain leaders' imagination and inventiveness?

D. Executive summary

D.1. Salient points

- The PDG model of career development is proposed – one that takes into account the effect that social media can have on the lives of leaders as they progress along their career journeys.
- It is recognised that not all leaders are similarly engaged in Twitter. However, it is suggested that in order to maximise professional benefit from the medium, leaders

should think critically about their involvement. The gold standard should be social media engagement that *redefines* their practice.

- Leaders should be aware that whilst there are large variances online between the breadth of different leaders' networks, depth varies little. Deep connections are the ones that most need to be cultivated and nurtured.
- Filter bubble or echo chamber effects operate strongly on Twitter. Leaders should adopt strategies to counteract this if they are to get the full value out of their own online lives.
- Barring some catastrophe Twitter uptake amongst school leaders is likely to continue to grow. A range of challenges and opportunities arise from this fact that school leaders should be attuned to.

D.2. Implications

- The PDG model provides leaders with the framework to critique their own use of Twitter.
- The research highlights specific realms of online practice that leaders need to think about. It suggests that leaders need to indulge in some introspection and self-regulation. If they do this they will be able to ensure that they are getting the most out of their online existence.

A. Introduction

In this chapter the implications of this piece of research are discussed for policy makers, for professionals and for other researchers. The research is placed in its proper context within the body of literature that precedes it and recommendations are made for the future. In addition, the research methods are considered and their possible weaknesses and biases exposed, such that appropriate weight can be assigned to the findings.

B. Answers to research questions

This study has attempted to unearth some of the ways in which senior leaders in education use Twitter as a professional development tool. In addition, it has attempted quantify Twitter's usefulness for senior leaders in schools. The findings will be of interest to school leaders themselves, as well as to organisations involved in the development of leadership within the profession.

As we have seen, 21 tweeps were interviewed. As a means of triangulation and further elucidation, these tweeps had their Twitter streams mined. Despite the evident differences between the tweeps who formed part of the study (see Table 14 on page 136) all share, with varying degrees of enthusiasm, the belief that Twitter is, by and large, a force for good in education. All, of course, are active users of Twitter.

In investigating the utility of Twitter as a professional development tool, four research questions were framed (as outlined in the Introduction on page 15). Each of these research questions have been discussed in detail in the preceding chapters, but a summary of the findings pertaining to each is presented here:

B.1. Research question 1: Why are certain senior leaders using Twitter?

The research identified several significant ways in which senior leaders are making use of Twitter as a professional development tool. All the leaders interviewed were effusive about the power of Twitter to augment - and in some cases replace - traditional sources of

information and training for senior leaders. Twitter's flexibility, and the breadth of connections it offered, were greatly valued by all the tweeps interviewed. The Twitter streams of respondents showed clear evidence of accounts being used to:

- gather and/or request information
- share resources
- provide encouragement or (rarely) admonition
- collaborate on shared enterprises
- enter into debate about topical educational issues

In this sense, the tweeps interviewed were admirably fulfilling all the personal elements of the six domains proposed Deiser and Newton (2013) as being requisites of social-media-literate leadership. Tweeps were active, to varying degrees, in producing, distributing and receiving materials through the medium of Twitter and associated social media platforms on a *personal level* as individuals. Time and again, as documented in the previous chapter, evidence emerged of enthusiastic engagement with Twitter for the purposes of personal improvement.

But Diesner and Newton (2013, online) identified *organisational and strategic* use of social media, where leaders perform the roles of advisors, architects and analysts, as equally important. Here even the most active and experienced tweeps I interviewed seemed still to be finding their way. The organisational and strategic facet of social media leadership was underdeveloped in almost every case, with only two respondents having had serious, board-level discussions about social media strategy. For most senior leader tweeps there existed a creative tension around their use of Twitter. @lambkin's description of an 'unresolved tension' amongst leaders resonated with many of the conversations I had with tweeps during the course of this research. The messy, democratising nature of Twitter, and its ability to short-circuit traditional power structures – to allow classroom teachers to converse with the world - is at once both liberating and dangerous.

Senior leaders, it seems, have embraced social media for the way it can transform their personal professional development, but few have systematised social media engagement across their organisations. Social media engagement at an organisational level tends to be ad hoc and rather uncoordinated, with no clear strategy governing the use of organisation-wide social media in the institutions of any of the tweeps interviewed. The unresolved tension identified by @lambkin is widespread.

As social media becomes ingrained in the fabric of schools and other educational institutions there is space for the philosophy underpinning its use to be explored. Equally, there is scope for institutions to adopt a more co-ordinated approach to managing the social media accounts that operate under their auspices. Senior leaders need to be helped to embrace the higher orders of engagement with social media suggested in the model proposed in the previous chapter (Figure 38 on page 194). Such formal training, backed by theory ought to be a feature of professional leadership courses such as the NPQH.

There is one final thing that strikes me here. As social media use looks likely to grow amongst school leaders in the near future, and as more and more leaders use their PLNs to find the information they need, they need to be wary of over-reliance. In a recent blog post on the issue by McIntosh (2015), in which he describes social media converts as 'Generation Ask', the dangers are succinctly articulated:

It's not just our students who have become this Generation Ask - their teachers, in droves, sit on Twitter asking questions to the network, whose answers are waiting there to be found. The technology of our networks risks turning us into lazy researchers, for one. But more worryingly, not doing our own homework, our own research, and relying instead on what others perceive to be 'right', means that we don't accidentally rub up against the interesting tangents that always come with one's own, personal, more time-consuming research.

The message is clear – as with many things in life, use in moderation is the key. Leaders get a lot out of Twitter, but they should not be blind to the network's limitations. A pulling

together of best practice on the network, allied to competent instruction on its practicalities, would greatly enhance formal leadership training.

B.2. Research question 2: How deep and broad are the Twitter networks of the sampled school leaders?

As has been discussed (pages 137-143), Twitter allows senior leaders access to a far larger network of educators than was ever previously possible. Some of the tweeps interviewed went out of their way to cultivate relationships with educators overseas, to share ideas and to learn from different educational systems. However, any announcement of the 'death of distance' is, as yet, still premature. The majority of tweeps still surround themselves and converse most regularly with people who are both geographically and ideologically close to themselves, albeit that some go out of their way to avoid the 'filter bubble' effect (see page 157). Indeed 'Dunbar's number' proved surprisingly accurate in quantifying significant reciprocal communication on the network.

Nonetheless, the sort of isolation and despondency that has been identified by authors such as Gronn (1999) and West Burnham (2009) as bedevilling the lives of some senior leaders has been somewhat ameliorated for those school leaders with a large PLN on Twitter. The size of these networks (in terms of followers and following) varies greatly between leaders, and is correlated closely to the regularity with which a given tweep is active on Twitter (see Figure 32 on page 142). Many tweeps reported having international connections of the sort that simply would not have been possible just a few years ago. These connections were universally thought to be enriching and valuable.

Thus there is little dispute that the PLNs of school leaders on Twitter are deeper and broader than traditional networks could ever aspire to be. Even the oft-cited criticism of remote communications: that they limit the extent to which tacit knowledge can be communicated (see Table 19 on page 170) is silenced to a large degree by the way leaders in this study were using Twitter. Rather than being hamstrung by the 140 character limit of their Tweets leaders were using Twitter to reference long-form posts stored elsewhere on

the internet, many of which dealt with the sort of difficult and nuanced topics that in the past would have previously been the preserve of private conversations, if they had happened at all.

In this sense, this study echoes the findings of other authors in the field who have found that Twitter is helping teachers to operate as reflective, open and sharing research-led practitioners (see earlier references on page 63). It corroborates too the view that teachers are extending their physical networks into virtual spaces such as Twitter to 'amplify and prolong the impact of what was shared' (McCulloch et al, 2011, p. 8). In this study the most engaged tweeps were certainly augmenting and redefining their professional journeys in the way conceptualised by the model of social media leadership I proposed in the previous chapter (see the PDG model of social media engagement proposed in Figure 38 on page 194).

Despite this, responses from interviewees showed that they still greatly valued face-to-face communications – witness the excitement for example that comes across in @hollingsworth's description of 'reunions with people you've never met before' (page 139). Researchers in other fields point to the stubborn resistance of physical clustering effects to the growth of virtual communities on social media networks. Cities still attract actual people (as opposed to their digital avatars) to them despite the fact that much of the work the attracted people do seems to be online and – on the face of things at least - could just as well be completed vicariously over the internet. Perversely the more internet-based the work, the stronger these clustering effects are - witness the tight concentration of workers in the financial sector in the City of London or of workers in the technology sector in Palo Alto, California. These workers are clustering because, despite the apparent ability of technologies like real-time face-to-face networking (Skype) or real-time microblogging (Twitter), people still prefer to communicate tacit knowledge face-to-face. So it is with senior leaders in schools. There is likely to remain, for the foreseeable future, a need for physical meetings of leaders in geographic space *even as the importance and frequency of*

these meetings begins to tail off. The comments made by @edwards31, capture the sentiments of many respondents on this issue:

People I've mostly connected with have been in the north-east United States. I tend to make deeper connections with people I have a realistic chance of meeting face-to-face.

The echo-chamber effect was a problem that each of the respondents mentioned in their interviews, albeit not always using that term. And respondents went to differing lengths to try and counter it. If the management of a PLN on Twitter is to become part of the course content on mainstream leadership courses, as I believe it should, then strategies for avoiding the echo-chamber effect, or at least having a heightened awareness of it will be necessary. Equally, links need to be made and properly cultivated between the various bodies responsible for leadership training across the world. There is no longer a need for the authorities involved in developing school leaders to operate solely within national borders and cultivating online relationships with similar bodies elsewhere in the world will likely enrich the services they offer.

B.3. Research question 3: What are the ways in which Twitter has contributed to school leaders' professional development and career progression?

This study has unearthed significant evidence of school leaders' appreciation of Twitter as a medium through which they derive a great amount of emotional and practical support in performing their day-to-day duties. Twitter goes some way towards reducing the loneliness that can attend senior leadership. And senior leaders value the ability of Twitter to serve them with answers to questions at a time and place that suits their working routine. In this sense, the boundary between home and school life has been somewhat blurred, with the leaders interviewed in this study appreciating the flexibility this gave them. Twitter's usefulness here chimes with studies such as those carried out by Borema (2011) and Smith (2007) suggesting that the most effective professional development for senior leaders in schools is not the traditional, planned one-to-many model but is a more informal one-to-

one or group mentoring model. The ability to work asynchronously and across time zones is a real boon for time-pressed senior leaders keen to expand their virtual networks.

Whilst the ability of Twitter to facilitate professional development on a personal level was much in evidence through the accounts of all the interviewees, it was somewhat less clear how Twitter had spilt over into institutional improvement. Several educators related using their Twitter accounts for marketing purposes, but appreciated that in so doing they were limiting their audience. There was also concern amongst the leaders questioned as to the possibility of blurring or diluting the message they hoped would be communicated via their accounts. Most, therefore, had adopted a model in which their Twitter account spoke for them, and them alone (and in each case was operated by them in person) whilst other school accounts operated (marketing, departmental accounts etc.) under different auspices. Invariably the only connection between the organisation and the individual therefore was through @ mentioning or reTweeting. Little mention was made by any of the leaders of the use of Twitter in classrooms (other than as a broadcast channel for teachers), or as a means of making meaningful connections between institutions. This is an area ripe for further research.

B.4. Research question 4: How might Twitter affect the professional journeys of school leaders and so impact on the on-going usefulness of Gronn's (1993) career progression model?

Respondents were united in their belief that Twitter had a role to play in enhancing the professional development of senior leaders in the future. A few - @johnson in particular – expressed concern about the legal implications of managing a large online presence. Issues of intellectual property ownership and the ability to speak one's mind freely were voiced. In the view of these individuals the educational establishment needs to grapple with some of these issues as a matter of urgency. There is a need to develop a more explicitly stated set of conventions for social media use amongst school leaders.

It is clear that the one-to-many model of professional development delivery no longer has a monopoly in the marketplace. Senior leaders, busy and geographically dispersed as they are, have a lot to gain from using services like Twitter as a channel through which to get the information and training that they need. Some national training bodies, like the NCTL, have already registered this and are increasingly active on social media (see Figure 15 on page 56). But in many cases the Twitter accounts, run by marketeers, not educationalists, are being used more as broadcast channels than as conduits for two-way discussions. Several respondents bemoaned that the most senior incumbents in schools – often nearing the ends of their careers – are largely silent on Twitter. As time moves on, many respondents suggested that being active on social media would become a professional norm and that this would, all things considered, be a good thing.

The PDG model of social media leadership proposed in the previous chapter (see Figure 38 on page 194) is an attempt to demonstrate the importance that social media might play in the lives of future leaders. Gronn's important insights are built upon, not discarded. The model takes account of the fact that leaders are interacting on Twitter, and on other social media platforms, at different levels of engagement. The model points to the deep, holistic engagement envisaged by authors such as Dixon (2012) or Diesner and Newton (2013) as being something to aspire to. As the influence of social media increases, leaders will need to become yet more adept at using it to their advantage and avoiding some of its more pernicious pitfalls. They will need, in short, to rise to the challenge of incorporating its ability to redefine and augment their work rather than just to digitise workflows that already exist.

This research strongly indicates that, even amongst enthusiastic adopters of Twitter, use of the medium for what Diesner and Newton (2013, online) refer to as 'strategic and organisational' objectives is under-developed. Policy makers, training providers and leaders themselves will have to grapple with this element of social-media-literate leadership as the future unfolds.

C. Evaluation of research design

As with any small scale research project, it is important not to overstate the significance of the findings. In what follows I address the areas of weakness and uncertainty that exist within this piece of research.

C.1. Sample bias

In the first instance, all the individuals interviewed during the course of this study were, by definition, Twitter enthusiasts. Unsurprisingly, enthusiasm for the medium came through strongly in all the interviews conducted. But clearly there are plenty of leaders who are sceptical about the use of social media, yet in this study their voices were not heard. There is great potential for future studies to explore, much as Deyampert (2013) began to, the value neophytes get from Twitter. Equally, there would be value in exploring the sentiments behind the decision of some leaders to shun social media engagement completely and remain deliberately cut off from the online world.

The way in which the purposeful sample used in this study snowballed meant that, by default, the study only reached out to the *most engaged* educators on Twitter – those willing to respond actively online. Internet commentators often talk of the ‘1 percent rule’ (Arthur, 2006) in which only 1% of users actually create content, only 10% actively engage with other users whilst 90% of users simply consume or, in the language of Twitter ‘lurk’ (see Figure 40). This study would not have picked up lurkers³⁷ – a large and significant proportion of the Twitter community if the 1% rule is to be taken at face value. Here too lies another potential interesting angle for future researchers to explore: why is it that so many social media users remain wary of content creation and of more active participation?

³⁷ The existence of ‘lurkers’ on the network – those whose presence is entirely passive, or whose accounts are dormant - goes some way to explaining the difficulty researchers have in coming up with accurate estimates of how many teachers and senior leaders there are on Twitter. See the work of @evans on page 191, for example, where he comes up with an estimate of 27% of UK teachers on Twitter.

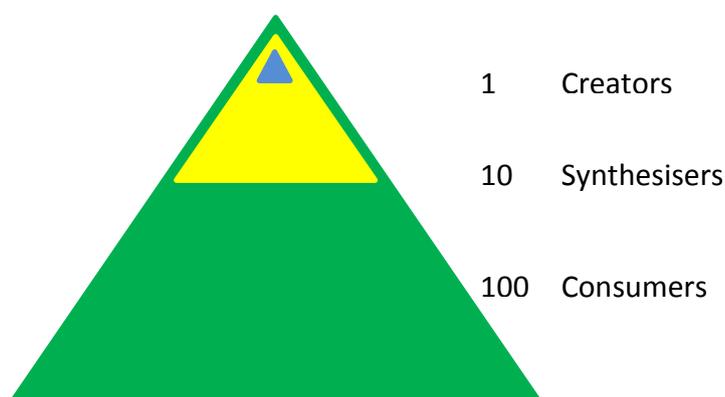


Figure 40, An illustration of the 1% rule (adapted from Johnson, 2012).

C.2. Problems with the reliability of grey literature

In order to answer the research questions this thesis has drawn heavily, not only on the content of interviews, but on the written pronouncements of respondents made on Twitter itself or – where these existed – on their blog posts. Although, as has been argued in an earlier chapter, such written pronouncements can be surprisingly candid and honest (see page 123), it would be disingenuous to suggest that this was always the case. As Hookway (2008, p. 96) explains:

[Blogs are] typically written for an implicit, if not explicit, audience. It is this potential presence of an audience and its immediacy to authors that is one of the key ways in which blogs differ from traditional forms of personal diary keeping – not to mention that blogs enable dialogue and even co-production between authors and readers.

Blog posts then, for all their immediacy and apparent intimacy, do need to be treated with caution. There is always the possibility that a given blogger is engaged in self-aggrandisement or even dishonesty. Individuals with a high-status role such as those who agreed to feature in this study may have an even stronger incentive to conceal their most intimate and honest thoughts from a watching public. Given that blog posts, and other sources of grey literature, have featured heavily in this study a degree of caution needs to be attached to taking them unquestioningly at face value.

C.3. Problems with the research methods

Additionally, it is important to mention the problems inherent in the coding of sources that formed the backbone of much of the research in this study. In the case of coding Tweets emerging from the timelines of respondents the categories shown in Table 11 on page 118 were used. But there were numerous instances in which Tweets did not fit neatly into any one single category. Take the example below:

@SDupp @mikercameron Now, now. That's pushing it :) (sneakily adds in book link)
<http://t.co/jSrinMLVZD>

Is this a response to others? An indication displeasure? Or is it best categorised as communication in which resources are shared? Coding was an inexact science. Whilst the figures shown in Table 15 give a beguiling sense of certainty in fact there is none. In this study coding was done manually by the researcher, had coding made use of a software like Nvivo³⁸, more objective – perhaps algorithmically driven – coding might have been possible. Also, in using a computerised coding system, it would have been possible to increase the number of Tweets harvested (with time being less of a constraint) and so have increased yet further the reliability of the findings. My recommendation would be that future researchers use the power of Nvivo to code the material that their researches on social media unearths.

Added to this, the time at which Tweets were extracted from users' timelines had a bearing on the sort of material they were Tweeting about. In some cases this may have resulted in a misleading impression of what was 'normal' for a given respondent. For example, the harvesting of many respondent timelines coincided with the May 2015 General Election in the UK, giving a distinctly political flavour to the material being Tweeted by many of the leaders in the study. In this sense it could be argued that their timelines produced material that gave a misleading impression of the content and tone of their typical activity on Twitter.

³⁸ Nvivo is the name given to a software package, much used in the social sciences, which enables computerised analysis of qualitative data.

No research design method is perfect, of course. In dealing with the complex machinations of human beings caveats and compromises are to be expected. Despite these comments about the efficacy of the research design my firm belief is that the research in this project is based on data that is of heuristic value.

D. Recommendations for policy and practice

This research has identified several areas where the use of social media, and the training connected to its use, could be tweaked and improved. These recommendations have implications for policy makers, senior leaders themselves and for those involved in leadership training. In summary, they are:

1. That the school leadership community explicitly recognise the importance social media plays in the lives of many leaders and that their publications and training materials reflect this. As a start, incorporating formal training in the area of social media engagement on the NPQH, and other similar leadership programmes, is suggested.
2. That leaders on Twitter apprise themselves of the danger of creating an echo-chamber and take positive steps to engage with alternative opinions in an organised and deliberate way.
3. That senior leaders – at whatever stage in their career - are encouraged to develop an online presence and to cultivate it. That these leaders are encouraged to extend their involvement beyond substitution and modification into the realms of augmentation and redefinition.
4. That those working within the educational research community begin to explore the impact of social media engagement on leaders' sense of self and their mental and physical well-being.
5. That more research is done into the ability of social media, not only to enhance individuals' career journeys, but also to improve strategic and organisational structures.

E. Areas for further research

This study has demonstrated that, for a small group of leaders at least, engagement with social media has had a significant role to play in their professional lives. The suggestion has been that social media needs to feature as an element in any future model purporting to map the lives of school leaders.

The small size of the study, however, means that any findings must, of necessity, be cautiously articulated. A larger study, making more strident efforts to engage with the 'lurkers' in social media (see Figure 40 on page 223), would therefore be valuable. Indeed, there is a rich seam of research to be mined into the very different habits of those leaders who, for whatever reason, are more passive on social media:

1. What is keeping them silent?
2. What are they getting out of their presence online?
3. How is their sense of self being affected? etc.

There is also, as has already been mentioned (see page 222), research to be done on those who deliberately distance themselves from online communities. By any reckoning the majority of teachers still do not use social media as part of their normal diet of professional development and engagement. There is a rich seam of research here to be explored into what the barriers to entry are that these teachers perceive and into the fears that they harbour about joining online communities.

Carpenter and Krutka (2014) identified the middle-aged voice as being dominant in many online professional communities. And in this study no individuals under 30 featured in the sample group – further evidence that something odd is going on. Here too there is research to be carried out in answering questions such as:

1. What factors are at play in drowning out youthful voices in some online communities?
2. Are there similar differences in participation that reflect gender or ethnicity?

3. To what extent are online communities ghettos or echo chambers harbouring only very similar types of people?

This thesis has focussed exclusively on the use of social media by leaders in schools. But social media is likely to have had an impact on the lives of those working in the university sector too. To date little research exists into the ways in which social media is impacting on the lives of leaders in tertiary education. Here too lies a potential area for further research.

In fact, in the nascent world of educational research into online communities, the opportunities for further research are legion. This is an exciting area and one that is developing fast. Academics and research students interested in the field will note that the suggestions presented here for future research are in no way exhaustive.

F. Executive summary

F.1. Salient points

- This study has uncovered a range of ways in which senior leaders are using Twitter to supplement their professional development.
- Twitter's influence is seen to have an impact on tweeps' career journeys through each of the stages of Gronn's model.
- Gronn's model has been built upon and adapted to reflect the importance of Twitter in the professional lives of many of today's school leaders.
- It is acknowledged that this research is limited in its scope and ripe for extension, and repetition in different contexts and at different scales.
- A range of areas for further study are suggested.

F.2. Implications

- Senior leaders may want to analyse their online practice and attempt to place themselves on the PDG model of career development this study has put forward.

- Policy makers and those involved with leadership development should incorporate social media training – and specifically training in its use as a professional development tool – into their domains of responsibility.

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8. APPENDICES

App 1. Semi-structured interview questions (pilot)

Preamble: I am conducting a study of senior school leaders' use of Twitter. This will involve following you for a period of a month and analysing your Tweets. Much biographical information I can glean from the site itself, but I would like to ask you the following questions:

- a. How many Twitter accounts do you have? What do you use them for?
- b. Can you give me an example of this use/uses?
- c. Whose Tweets are you most interested in? Why?
- d. Have you used Twitter for your own professional development/career progression?
Can you give me examples if you have?
- e. Have you found Twitter useful in your professional life? If so, how? Can you give example(s)?
- f. What problems do you perceive with Twitter? Can you give examples?
- g. What are your feelings about Twitter use amongst your pupils? Is it widespread? Do you encourage it? Have you got examples?
- h. What are your feelings about Twitter use amongst your parents and alumni? Is it widespread? Do you encourage it? Have you got examples?
- i. What are your feelings about Twitter use amongst your staff? Is it widespread? Do you encourage it? Have you got examples?
- j. How would you like to change/adapt your use of the medium in the future?

App 2. Informed consent form

Informed Consent Form for _____

Researcher name:	Contact details:
Academic supervisor:	Contact details:

Title of the work: The use of Twitter by school leaders for professional development as their careers progress.

Part I: Information Sheet

Introduction

I am [REDACTED], a British school teacher, carrying out an educational doctorate at the [REDACTED]. I am doing research into the use of Twitter by senior leaders in schools. You do not have to decide today whether or not you will participate in the research. Before you decide, you can talk to me or anyone you feel comfortable with about the research.

Purpose of the research

Twitter is increasingly used by members of the educational community for the dissemination of ideas. My study focusses on the who, what, why, when and where of Twitter use amongst senior leaders. Specifically I am trying to answer these four research questions:

1. Why are certain senior leaders using Twitter?
2. How deep and broad are the Twitter networks of the sampled school leaders?

3. What are the ways in which Twitter has contributed to school leaders' professional development and career progression?
4. How might Twitter affect the professional journeys of school leaders and so impact on the on-going usefulness of Gronn's (1993) career progression model?

Research Instruments

I am using two techniques to elicit information that I hope will help me answer these questions – a semi-structured interview and content analysis (data mining) on Twitter. You are being asked to help me as a respondent to the semi-structured interview. Note that I will also have been following you on Twitter and monitoring your Tweets.

Participant Selection

You are being invited to take part in this research because you are an active member of the online Twitter community of educators.

Voluntary Participation

Needless to say, your participation in this research is entirely voluntary. It is your choice whether to participate or not. You may change your mind later and, of course, stop participating even if you agreed earlier.

Procedures

I am asking you to take part as a respondent in my study into Twitter use by senior leaders in schools. If you agree your participation will involve taking part in a face-to-face interview lasting up to an hour. During the interview, I will sit down with you in a quiet and mutually agreed location.

If you do not wish to answer any of the questions during the interview, you may say so and I will move on to the next question. No one else but the interviewer will be present unless

you would like someone else to be there. The information recorded is confidential, and no one else except me will have access to the information documented during your interview.

The entire interview will be digitally-recorded, but no-one will be identified by name on the recording. The recording will be kept safely in an encrypted area of my Evernote account, and will be shared with you. It will be removed from my Evernote account as soon as analysis is finished, or by 1 August 2015, whichever is the sooner.

Confidentiality

The information that I collect from this research project will be kept private. Any information about you will have an arbitrary Twitter handle attached to it instead of your name. Only I will know what your assigned Twitter handle is and I will keep that information safe. It will not be shared with or given to anyone to ensure your anonymity.

Sharing the Results

Nothing that you tell me today will be attributed to you by name. The knowledge that I get from this research will be shared with you before release of any thesis or other publication that uses data you have provided. Each participant will receive a summary of the results once the research is complete. In accordance with the university's data storage rules (UoB, 2014) the results will be stored securely, ready for retrieval, for 10 years following the completion of the study.

Right to Refuse or Withdraw

You do not have to take part in this research if you do not wish to do so. You may stop participating in the interview at any time that you wish. I will give you an opportunity at the end of the interview to review your remarks, and you can ask to modify or remove portions of those, if you do not agree with my notes or if I did not understand you correctly. After the interview process the audio file of the interview will be uploaded to an encrypted Evernote

notebook and shared with you. You are entirely at liberty to withdraw your consent to participate at any stage within the 14 days following the date that the Evernote audio file was first shared with you.

Who to Contact

If you have any questions, you can ask them now or later. If you wish to ask questions later, you may contact any of the following: Tim Jefferis .

This proposal has been reviewed and approved by the Birmingham University Ethics Board which is a committee whose task it is to make sure that research participants are protected from harm.

You can ask me any more questions about any part of the research study, if you wish to.

Part II: Certificate of Consent

To be filled in by the participant:

I have been invited to participate in research about Twitter use by head teachers in schools. I have read the foregoing information, or it has been read to me. I have had the opportunity to ask questions about it and any questions I have been asked have been answered to my satisfaction. I consent voluntarily to be a participant in this study.

Print Name of Participant _____

Signature of Participant _____

Date _____ (Day/month/year)

To be filled in by the researcher:

I confirm that the participant was given an opportunity to ask questions about the study, and all the questions asked by the participant have been answered correctly and to the best of my ability. I confirm that the individual has not been coerced into giving consent, and the consent has been given freely and voluntarily.

Print Name of Researcher/person taking the consent _____

Signature of Researcher /person taking the consent _____

Date _____ (Day/month/year)

App 3. Final interview framework

1. What is your Twitter handle?
2. How long have you been on Twitter?
3. What, if any, personal uses do you put your Twitter account to to?
 - how often?
 - can you give examples?
4. What, if any professional uses do you put your Twitter account to to?
 - how often?
 - can you give examples?
5. Do you have any concerns about Twitter use either from a personal or professional perspective?
6. What barriers do you think there are to wider Twitter adoption by school leaders?
7. Have you discussed Twitter use in school as an SMT? with the Governors? If so, what issues arose?
8. Can you take me through a typical week/day of yours on Twitter?
 - How often do you post?
 - Do you post yourself or does someone else?
 - What software do you use?
 - What do you use Twitter for?
 - Can you give examples?
9. Have you met anyone on Twitter?
 - in real life/online?
 - can you describe what happened?
10. Do you have any other thoughts on these issues?

App 4. Sample interview transcript

Herewith the transcript of an interview I had with @mulholland. The interview took place on 21 May 2014 at 19:50hrs.

TJJ - ...It sounds like a uh, quite a cool job because you were a normal teacher prior to that weren't you?

R - Yeh I was a um a sociology and classical civilisation teacher

TJJ - Yeh

R – I was lucky that my college had kind of let me get on and do what the hell I wanted. And so yeh I used to get to play and do what I wanted to – with tech or without.

TJJ - So did you have a reduced timetable to allow you to do it?

R - Um no not in my old job but in my new job I've only got 40% teaching

TJJ - Oh okay

R - But uh the rest of the time I um was in class was teaching to a guy saying "Oh look your almost past wonderful always works.." um and um hang out helping them plan and um it's just sort of confidence really.

TJJ – Yeh, yeh. Sounds amazing, sounds really good so basically my deal is that I'm doing a um a doctorate, I think I might of told you that at that thing...

R - Oh yeah

TJJ - I managed to, I bagged an interview with Oliver Quinlan uh I'm doing a doctorate in the use of Twitter. I mean I'm uh really just interested in all social networks but uh Twitter is the focus and I think if I split it any wider than that then uh it will just become unmanageable.

So its notionally on how senior leaders are using it but I'm not restricting myself only senior leaders.

R - Okay

TJJ - So um it's called an unstructured interview so if you go off on one I'll just..

R – Can I uh, I just also wanted to say I've got a PHD myself, no you're fine

TJJ - Oh I'll just let you pontificate as you, as you...

R - No, no you're fine

TJJ - So first of all otherwise I could work this out myself but how long have you been on Twitter?

R - Um I would need to look this up... it's interesting actually because I've already been the subject of someone's Masters study

TJJ - Ha! Have you?!

R- I have

TJJ – You're going to be the most studied women on Twitter. Ha ha ha ha

R – She proper stalked me like. When I met her she knew more about me than I did! Um I think it's 4 years.

TJJ - Uh so you joined in 2010 or end of 2009 something like that...?

R - Something like that.

TJJ - Yeah

R - I probably vegetated probably for about 2 years

TJJ - Ah okay, okay. And um do you put it for any personal use or do you only use it for professional purposes?

R - Um no that's why I registered um actually... ha ha I kind of I think the one that I was part of before she looked at gender usage so the way that women use it, the way that men use it. Um I don't, I think I kind of do this "Oh here's all my work" kind of stuff blah blah "Oh look my children did this..."

TJJ - Oh what so you do that as well do you?

R - I have

TJJ - So you Tweet about that as well?

R - Yeh I do

TJJ - Oh right okay so there's a human side to the whole thing. So you got you've got friends, genuine friends that follow you on Twitter who find out about your family news?

R - Yeah

TJJ - Do they not get annoyed by your Tweets of work related stuff?

R - No, a lot of it actually works the other way. People that I met through Twitter who are teachers are now my genuine friends.

TJJ - Yeah, yeah

R - And like we go and you know over the course of a couple of years we go and stay over each other's houses our children know each other and they are really like, I've got three

really close friends in particular that I probably text we've got a four way text conversation we're looking about 40 texts a day between us so uh ha ha so..

TJJ - Ha ha

R - And uh that has to happen because otherwise it will would just annoy everyone Tweeting uh yeah so the personal stuff you know it's not "Oh no my life is crap" or...

TJJ - No, yeah

R – It's more just: "Oh look it's a pretty window, ah..."

TJJ - So you don't do what a lot of people do which is mostly use Twitter for professional and Facebook for personal.

R - No, uh...

TJJ - Which is the pattern I tend to see

R - um that would happen in my way of ideal life and how I did it in the past: Facebook was people I knew and Twitter was the people I didn't. But what happened as time went on was that Twitter became people I knew and met.

TJJ - Yeah

R - And so I met them there and met them at TeachMeets and I met them at conferences and.. and then yeh people me added me on Facebook and I was like yeh do you know what – that divide has kinda gone.

TJJ - Oh okay. Interesting, interesting.

R - Not at all..

TJJ - Uh

R - I think for me Google plus is the one where I haven't met a lot of them at all that's because a lot of them are abroad and they're Google certified teachers so I might do I guess...

TJJ - And is uh is it bigger in America Google plus? I have got a Google plus actually with my personal Gmail uh but I have not put it really to any use. It just shows a bit of a shame because I think the platform looks really nice uh but when I started with it I seemed to be a lonely voice in the wilderness, so I've never, never really done anything on it...

R - Yeah, yeah it's kind of, it is what it is. I mean people who are into Google stuff have got it. and I mean I'm not wholesale into it. I use it sometimes and not at other times. But that's where those people are so if I need to participate or catch up in what they are doing that is where they are..

TJJ - So you've got some people only on that, and that's the only way of getting hold of them?

R - Absolutely

TJJ - Oh right. And do you use, something like, I don't know, I don't know whether Buffer does this but ...do you use a platform that allows you to send the same stuff to all your social networks?

R - Um I've got a thing that runs from WordPress for my blog which is useful but I was looking at it yesterday and I've kind of broken it. I'm horribly and I find writing really hard so

TJJ - You'd never, never know that from reading your blogs. It reads really well.

R - Oh ooh well yeah I don't think so, thank you though. But I didn't want to be this person who bombarded people with constant Tweets and things that I've done but my friend managed to justify it to me – it takes you so long to write it it's kind of okay to Tweet it.

TJJ - Yeah it would be a shame if no one read it, wouldn't it?

R - Yeah, yeah and I think it boosts me sometimes when you first write something and they get re-put out that it's just so...

TJJ - Yeah

R - So, I've got a thing on Word Press there it's called a 'Jet Pack' that um auto sends things to Twitter. It's connected to Google Plus – no it's not - to Twitter and to LinkedIn as well...

TJJ - Ah, okay...

R - Um, but I don't send things to Facebook, I mean but if I put things on Facebook because I thing ah, you know all these people who are teacher, some of whom I've known from my childhood and some of them are teachers um and some of them might want to up their game

TJJ - Okay, so can you think of any examples where, you know, Twitter has really moved you forward as a professional?

R - My life is completely different, and like um I've gone from being um I don't know how much you know about me but um...

TJJ - I haven't been stalking you on Twitter, if that's what you ha mean ha ha ha...

R – No so until 18 months ago I was a normal classroom teacher I never posted anything or shared anything or whatever. And it worked really well. I mean my results were brilliant and they were brilliant in my subject. It was good – it was my job wasn't it?

TJJ - Yeah, yeah

R – Anyway so I was bullied and badgered into writing a blog

TJJ - By someone in your school?

R - No, no by Mark Anderson, he's an ICT Evangelist, so um...

TJJ - Oh, oh right, so were you already stage known as someone quite geeky?

R – Um no. He just said there are people who would do this stuff and really like it. And you should put it out there.

TJJ – The stuff you did in the classroom?

R – Yeh. And because I've got hang-ups about writing in public I was a bit cautious at first. But it was through reading other people's teaching and learning blogs that I kind of got round to thinking 'Oh yeh, okay. It might be okay'. So I kind of wrote stuff and people like it.. And that's.. Anyway sometimes I write things and think no-one's going to read that and then it's like – oh And all that sharing and collaboration – and making life better has basically come through Twitter. The feedback that comes through it is amazing.

TJJ – It's like the world's biggest and most generous staff room I think.

R – Anyway so from there I went to do TeachMeets and a few other things. And no I've kind of got to this weird stage where I have written a book and that's going to be published and I've been offered two more books and I kind of get paid £2000 to go and do an hour workshop – and all that is just everything I've always done.

TJJ – So it's really taken off for you?

R – Yeh it's a bit weird.

TJJ – Now you kind of intimated just a minute ago that you maybe have a few concerns about Twitter and people being – what are they called – trolls?

R – Well yeh. So anyway I went to Pedagoo southwest. Don't know if you've heard of Pedagoo. Anyway so I'm a Pedagoo member and I went to their thing. And I'm doing their keynote at Pedagoo southwest. Anyway so there's a few things about it that bug me. Part of it is that people go there for a fight. And there are lots of what I see as being artificial divides. So between so-called traditionalists and progressives... Anyway so there are people that I used to try and avoid them but now they all follow me. So like the Echo Chamber retweets things – you know @oldandrew - and I'm like well I know you're doing it because you want a fight and you want to argue with me. But I'm not going to argue I'm just going to...

TJJ- What is the Echo Chamber – what's that?

R – Oh @oldandrew. He used to be an anonymous blogger and Michael Gove called him his favourite blogger. And he is very teacher-centred, didactic, traditional. He's got quite a fan club and he argues with people. I've argued with him. A few years ago I used to argue with him. But now I'm like: you know what? My life's too short... Anyway so he started a thing called the Echo Chamber where he would re-blog onto his Echo Chamber blog things of interest to the teaching community i.e. the things that he was interested in. And he would post things occasionally for his fan club to ridicule. So occasionally he puts me in there – as an item to ridicule. Anyway, so there's that kind of traditionalist – progressive divide – artificial weird divide. Yeh but I think another sort of issue is that there are people flogging themselves on there that are now basically consultants and have things to sell. I find that a bit distasteful but again....

TJJ – Do you think there is any barriers to wider adoption of Twitter by the teaching community?

R – I think the problem is that people somehow think you need a medal if you're on Twitter. But it's not like that it should be part of your personal CPD. And then there's this idea that your school is going to sack you for looking through a timeline and stealing ideas... and I think what makes it really powerful is when you share your stuff and put yourself up for a bit of scrutiny. And then take it on the chin if it's crap or if someone else has done it better or whatever... But engage properly in those debates and not in just the kinda petty – you know crap – arguing that goes on. There are people who are like really good and who – you know – who I really respect who literally spend hours and hours a week defending their pedagogy. And I'm like you know what I just let them crack on. Um people like @imagineinquiry I really rate their stuff and I think they're great but they just get embroiled in this like crap... Anyway so I've been blocked by people. There was this one guy who was kind of a dick and he blocked me. I think he only followed me out of courtesy and then I found when I tried to follow him that I couldn't. I think he only followed me out of courtesy. I think people must feel that they have to have balance.

TJJ – Can you take me through a typical day of yours on Twitter?

R – Easy-peasy. So I've got horrible insomnia, like really, really bad. I can't sleep at night. So I start at night time. I wake up in the night and I just talk to people.

TJJ – so this is late at night. So are you talking to Americans or are you talking to other people who are..

R – Yeh Americans. I've got a really good following in America. like some of my favourite followers are in America. Yeh so a guy called @davidedu - who's like properly an inspiration. So I'll join in on their chats etc. and I get lots of ideas. It is interesting just for comparisons on how they are assessed. I've woken up in the morning and found people having a four way conversation: one of them in Oman, one in California, one in NZ and.. anyway having a four way conversation about something that I'd done in a lesson. It was really, really brilliant.

TJJ – So are you saying that during the day you don't really Tweet?

R- No, no I do. I have a good morning Tweet which I've done ever since I started. I would stop doing it but about a year ago someone DM'd me who I didn't know anyway so he told me that a couple of months ago he was really close to suicide. And he said that it was you telling me to get out of bed every morning that kept me going....

TJJ – My word, scary isn't it. I hope you don't feel obligated to do it just because of him.

R – Anyway so he was like a teacher who was being bullied in school.

TJJ – so you send a Tweet out every morning with no educational content at all.

R – No, sometimes educational, but sometimes just things that I think are funny.

TJJ – So what about during the day? Are you constantly on your phone?

R – I'm kind of free and easy. I've got it on my phone, but I've got it on my iPad too. So I um I'll check it at break. I don't look at Twitter on my iPad and I'll leave my notifications. And then at lunchtimes it depends if I'm on duty or not and all that sort of boring stuff. To be honest because I'm on my own with my kiddies so um I've got time in the evenings so I use it then. And it tends to be things that I've done – like pictures of the kid's work or things that I've written...

TJJ- Okay, yeh, interesting. And you've kind of answered this already but you've met people in real life who you've met on Twitter?

R – Yeh I'd say everyone I really want to meet. I'd say there were about two left at Pedagogoo Southwest who I'm really looking forward to meeting..

TJJ – But you haven't met those Californians yet?

R – I've met @oldandrew and I've met a lot of the Teach First crowd.

TJJ - So how did you come to meet @oldandrew for example?

R – I was speaking at Pedagogoo in London and so was he.

TJJ – so how many people do you think are in this community of really quite regular Tweeters? If you've met them all there can't be that many can there?

R – No, no there's not that many. People I tend to see... Probably - these people you call like Twitterati – I'm not one of them but, probably like 100-150.

TJJ – and you don't regard yourself as being one of them?

R – No I'm not cool like...

TJJ – But surely if they're all following you are one of them yourself aren't you?

R – they don't all follow me @geoffbarton doesn't follow me, neither does @surrealanarchy – who's Martin wotsit - he wrote that book about past lessons for teaching..

TJJ – here's an interesting thing. Do you think that Twitter enables you to surround yourself with people who merely affirm your particular world view?

R – A lot of people who use it like the equivalent of an Echo Chamber. So people like – please don't quote me – but people like... I get some nasty comments on my blog. I get 3000 word comments on some of my blog posts.

TJJ – do you feel overwhelmed by the volume of people you need to respond to?

R – um there's not that many people. But people I have had notifications from today is [counts] 121

TJJ – Bloody hell. And that’s on top of holding down a normal job.

R – But it’s not really as bad as that because I’d say 80% is people reTweeting things.

TJJ – so you don’t say thank you reTweeting?

R- I used to but...

TJJ – I think it may be possible to automate that.

R – I know but I don’t really want to automate too much. It’s not really you anymore and...

TJJ – so do you automate at all?

R – My blogs...

TJJ – well look that’s it. I cannot believe how generous you’ve been with your time. Is there anything else you think I should know about Twitter?

R- What about Twitter in education?

TJJ – yes

R - Well there’s just so much. I think you’ll find that virtually all my followers are teachers and I follow them back. Who am I to judge who is worth following or not – seems really rude. But it’s very interesting Twitter. I think there is a kind of a core of a cool, I don’t know like – who do you think are the cool people. Like Tom Sherrington... I mean I think it’s interesting if I look at what I’m doing over the next few weeks. I’m keynoting at the Pedagogoo, I’m speaking at the Times Education Festival, I’m speaking at a research group in London oh yeh and at this other teaching and learning thing... I’ve got a book coming out...

TJJ – What’s the book going to be on?

R – Oh it's.. Part of it is that in order to become a Google Certified teacher you have to do a public benefit project. And I didn't know what to do. Anyway after Christmas I had this idea that I'd ask teachers to give me their top tips about teaching and learning. Yeh so the whole book worked through Twitter. So yes I set up a Google form... So the book is a summary of what people said. Every single subject is covered – every single thing I could think of in education. And all the profits go to Action for Children.

App 5. Sample TwDocs transcript

A sample excerpt from a file generated using TwDocs, showing some of the information available on any given user's Twitter stream:

Created At	Text	ReTweet Count	Favorite Count	Source
04/04/2015 10:10	RT @redacted: "@redacted: Beyond Inspection: Building the Case 4 Peer Review http://t.co/KbizRklUr6	1	0	Twitter for Android
04/04/2015 10:10	RT @redacted: @redacted Getting behaviour right. By @redacted: http://t.co/3ofgRjsA9P #UKEdChat http://t.co/clXtEot0vx	5	0	Twitter for Android
04/04/2015 10:09	RT @redacted: @redacted on vision and authenticity http://t.co/BtupaTjYy3 #leadership	2	0	Twitter for Android
04/04/2015 10:09	RT @redacted: Great article from @redacted using @redacted Making Teaching and Learning More Visible http://t.co/1Kg6BllQYA #ukedtech	2	0	Twitter for Android
04/04/2015 10:09	RT @redacted: "@redacted: The Authentic Four Minute (3:59.4) Leader http://t.co/19iUq1XoPY Accountability starts where response...	2	0	Twitter for Android
02/04/2015 20:08	Pedagogy and Student Behaviours #GreatTeaching http://t.co/TcRWhiLQV2 Build routines and drill students in them	0	1	TweetDeck
02/04/2015 19:12	RT @redacted: how was your first #teacher5aday term? https://t.co/ywxonMbHAc @redacted @redacted @redacted http://t.co/h...	1	0	Twitter for Android
02/04/2015 18:24	Beyond Inspection: Building the Case 4 Peer Review http://t.co/KKZOAbC8M6 Wrote this on 21st Feb 2015 - do u think certain people read it?	1	1	TweetDeck
02/04/2015 17:34	RT @redacted: Have a very Happy, relaxing and safe Easter Break....well deserved #longterm2	1	0	Twitter Web Client
02/04/2015 17:24	@redacted Missed it. lol Hope you're well. Enjoy the break	0	1	Twitter Web Client
02/04/2015 16:58	RT @redacted: Don't forget TM Salford in Manchester in July #TMLondon Pls RT @redacted @redacted @redacted http://t.co...	1	0	Twitter Web Client
02/04/2015 16:44	RT @redacted: @redacted Please could you RT? £15,000 grants available for #teachers working with disadvantaged kids http://t.co/BQAWTQz...	10	0	Twitter Web Client

Created At	Text	ReTweet Count	Favorite Count	Source
02/04/2015 16:42	Finished for Easter, check Twitter to find 7,999 followers. Oh, the agony of reaching 8k. Watch someone unfollow lol http://t.co/A1ahMU0NrT	1	1	Twitter Web Client
02/04/2015 16:38	RT @redacted: designElearn Daily is out! http://t.co/Qm1X05KN1U Stories via @redacted @redacted @redacted	1	0	Twitter Web Client
02/04/2015 14:27	RT @redacted: Inspection's Nearly Over! It's Official #SLTChat by @redacted http://t.co/LuPivxXWad	1	0	Twitter Web Client
02/04/2015 14:26	RT @redacted: What should have been found guilty in this trial is our high-stakes testing system which corrupts learning for all. http://t.co/...	36	0	Twitter Web Client
02/04/2015 09:12	From 21st Feb - not sure whether it's prophetic or dated? Beyond Inspection: Building the Case for Peer Review http://t.co/KKZOAbC8M6	3	1	TweetDeck
02/04/2015 08:56	RT @redacted: Inspection's Nearly Over! It's Official #SLTChat by @redacted http://t.co/yoLqV2nG9G	3	0	Twitter Web Client
02/04/2015 08:56	RT @redacted: 'Proven' strategies via "@redacted: Pedagogy and Student Behaviours Part of the #GreatTeaching series - http://t.co/v...	1	0	Twitter Web Client
02/04/2015 07:57	Pedagogy and Student Behaviours Part of the #GreatTeaching series - this one from February http://t.co/TcRWhiLQV2	1	3	TweetDeck
02/04/2015 07:38	RT @redacted: Don't forget to sign up to TeachMeet West Norfolk #TMWN in July https://t.co/ZbwxPQKR1x :) #TMLondon	2	0	Twitter for Android
02/04/2015 07:37	RT @redacted_Kat: "@redacted: Such a good quote in fact, @redacted, we made this... #TMLondon http://t.co/gFMz2Yz6wn	8	0	Twitter for Android
01/04/2015 23:22	@redacted I wish. Followed nearly all of it on line. Hope our paths cross one day. Sure they will.	0	0	Twitter for Android
01/04/2015 23:17	RT @redacted: Without a vision the people will perish. Thanks @redacted: Vision and values are key. A good read http://t.co/HkkAWx...	2	0	Twitter for Android
01/04/2015 23:11	RT @redacted: Schools and the Mindless Mindset Meritocracy http://t.co/JIGRjpMDFR my latest blog	4	0	Twitter for Android
01/04/2015	SoS, I Need a Dream http://t.co/EgLHprA2PE Without a Vision the People will Perish. Our Education	2	0	TweetDeck

Created At	Text	ReTweet Count	Favorite Count	Source
23:05	Vision is rooted in our view of humanity			
01/04/2015 22:02	The Authentic Four Minute (3:59.4) Leader http://t.co/6oNknEdLt6 Accountability starts where responsibility stops	3	6	TweetDeck
01/04/2015 21:28	@redacted @redacted @redacted @redacted @redacted @redacted Fantastic evening, thanks for organising #TMLondon	1	5	Twitter Web Client
01/04/2015 21:21	#TMLondon From @redacted - Stay True http://t.co/f3ZGfaJl3r	42	42	Twitter Web Client
01/04/2015 21:14	@redacted Fantastic input at #TMLondon - Are you the type of leader who takes people with you? Why would anyone want to be led by you?	2	2	Twitter Web Client
01/04/2015 21:09	First blog post of this term: The Year of #GreatTeaching http://t.co/dHuaptt5Jc Every Year should be a year of great teaching	1	0	TweetDeck
01/04/2015 21:02	@redacted Thanks Alex, spotted it but lost the live feed at just the wrong moment. School looks great, fantastic evening too	0	1	Twitter Web Client
01/04/2015 20:59	RT @redacted: This is such a great advert for our school @redacted@redacted #TMLondon	12	0	Twitter Web Client
01/04/2015 20:57	RT @redacted: Organisational blindness, Blog: https://t.co/xhvtGLWY0 @redacted @redacted @redacted @redacted http...	6	0	Twitter Web Client
01/04/2015 20:44	RT @redacted: Life after levels is a curriculum issue not a data issue. So true! #TMLondon	11	0	Twitter Web Client
01/04/2015 19:21	#TMLondon Top leadership tip Things may restrict you but never let them define you or what you do as a leader	2	3	Twitter for Android
01/04/2015 19:06	RT @redacted: The prize is mine #TMLondon Without a doubt. No? http://t.co/VCPZANJa1i	1	0	Twitter for Android
01/04/2015 19:01	#TMLondon @redacted you haven't got a minute. You're live. Hope everyone has a great teachmeet. Enjoying the view @redacted	1	2	Twitter for Android
01/04/2015 17:25	@redacted @redacted @redacted @redacted @redacted @redacted Hope you all have a fantastic #TMLondon	0	2	Twitter for Android

Created At	Text	ReTweet Count	Favorite Count	Source
01/04/2015 17:14	Wonder which political party will present a coherent vision for education in the next 36 days? SoS, I Need a Dream http://t.co/EgLHprA2PE	1	3	TweetDeck
01/04/2015 17:03	RT @redacted: "Develop a passion for learning. If you do, you will never cease to grow." - Anthony J. D'Angelo @redacted @redacted	3	0	Twitter Web Client
01/04/2015 17:02	@redacted Thanks Jill. Hope #TMLondon goes well tonight. Hope to tune in.	0	0	Twitter Web Client
01/04/2015 17:02	RT @redacted: Really enjoyed this post, @redacted: Complex doesn't have to mean complicated. http://t.co/MBzFkVYxfB	1	0	Twitter Web Client
01/04/2015 17:02	RT @redacted: Colour-coded exam marking - what's gone well (& what needs re-teaching). Ta for reminder in webinar @redacted http://t.co/MBzFkVYxfB	2	0	Twitter Web Client
01/04/2015 11:11	The Authentic Four Minute (3:59.4) Leader http://t.co/6oNknEdLt6 From January - you can't fake authenticity	0	1	TweetDeck
01/04/2015 07:56	Started 2015 with The Year of #GreatTeaching http://t.co/dHuatpt5Jc The one with the dodgy podcast but useful schema	0	0	TweetDeck
01/04/2015 07:55	Just going to revisit a few blog posts from this term whilst I think of something new to write about	0	0	TweetDeck
01/04/2015 07:33	@redacted: @redacted @redacted @redacted No preferred style of hovering..." Maybe there should be ... what style works best 😊	0	1	Twitter for Android
01/04/2015 07:22	@redacted #Ofsted to pilot drone programme in effort to scale back costs http://t.co/buiXPFaJSB @redacted @redacted Lol	0	0	Twitter for Android
31/03/2015 23:29	Leadership in Complex Times http://t.co/ejpa8ADXfB Leaders should think before saying or doing anything (trust me I know from experience!)	4	1	TweetDeck
31/03/2015 23:12	The #5MinWorkloadPlan by @redacted and @redacted http://t.co/YNwGYIFcHB Discussing with staff tonight, what should we abandon?	9	5	Twitter for Android
31/03/2015 23:08	RT @redacted: Life After Levels - An Assessment Revolution? http://t.co/Sk5S9zsCxt via @redacted	3	0	Twitter for Android
31/03/2015	RT @redacted: Great #assessment advice from @redacted: linear progress myth, stepping away	3	0	Twitter for

Created At	Text	ReTweet Count	Favorite Count	Source
23:08	from grading mentality, and more: http://t.co/ejpa8ADXfB			Android
31/03/2015 22:34	Leadership in Complex Times http://t.co/ejpa8ADXfB Families of schools connected in wider school networks. Part of self-organising system	1	1	TweetDeck
31/03/2015 21:23	RT @redacted: Should I behave? A musical playlist #blog http://t.co/906BZz7nLd @redacted @redacted @redacted @redacted	1	0	Twitter for Android
31/03/2015 21:21	RT @redacted: @redacted @redacted @redacted can we help with RT, chaps... https://t.co/UrklfUpiO	1	0	Twitter for Android
31/03/2015 21:15	With election campaign kicking off properly, think things might get a bit more complex Leadership in Complex Times http://t.co/ejpa8ADXfB	0	0	TweetDeck
31/03/2015 20:01	Just finished great session with staff from across the Trust on Life After Levels - An Assessment Revolution? http://t.co/YRZjbJNJJD	3	4	TweetDeck
31/03/2015 08:43	RT @redacted: Confusion about British values... http://t.co/iogi5PPCXy via @redacted	2	0	Twitter for Android
31/03/2015 07:42	NEW POST Leadership in Complex Times http://t.co/ejpa8ADXfB Is our current complex school system going to be resilient or fragile?	1	1	TweetDeck
31/03/2015 07:22	RT @redacted: Our first NTEN Annual Conference for members only will be on 08.07.15 @redacted Find out more here! http://t.co/ClgZQH...	12	0	Twitter for Android
31/03/2015 07:20	Mindset, attitude and behaviour http://t.co/99tihlAqkQ @redacted suggests creating a growth mindset toolkit	4	9	Mobile Web
31/03/2015 07:18	RT @redacted: Here are the blogs I've noticed over the past 30 Panorama (April '14) by @redacted http://t.co/DdLRRDAJG9 http://...	4	0	Twitter for Android
30/03/2015 23:16	Mastery - some considerations Mary Myatt Learning 07766 338965 http://t.co/EIEM4Cqblx via @redacted	2	5	Twitter for Android
30/03/2015 23:15	Education Panorama (April '14) by @redacted http://t.co/3yRCLJCO8H via @redacted	0	0	Twitter for Android
30/03/2015 23:10	RT @redacted: #TLT15 is back! Sat 17th October. Last year sold out in under 10 hours so register your interest here: http://t.co/GE7f...	6	0	Twitter for Android

Created At	Text	ReTweet Count	Favorite Count	Source
30/03/2015 22:41	NEW POST Leadership in Complex Times http://t.co/ejpa8ADXfB Trying to neatly organise cosmic string, juggle ether or knit fog ...	0	0	TweetDeck
30/03/2015 21:47	Long Live Peer Review http://t.co/l19sN9ucFL Catch up with @redacted speech to @redacted http://t.co/12FTzsfQZ @redacted	0	0	TweetDeck
30/03/2015 21:20	NEW POST Leadership in Complex Times http://t.co/ejpa8ADXfB Why we need to think more like Finnish Lessons 2.0 by @redacted	3	2	TweetDeck
30/03/2015 21:19	@redacted Thursday for us too. We're not there ... YET ;-)	0	1	Twitter Web Client
30/03/2015 21:03	Embedding growth mind set into our community http://t.co/biwq12YJKR More great stuff from @redacted	2	3	Buffer
30/03/2015 21:00	RT @redacted: Everyone agrees literacy is a priority but no one is doing it well. Happy to help.	9	0	TweetDeck
30/03/2015 21:00	@redacted May well take you up on that. Hope you have time with the new job (& belated congrats for that)	0	0	TweetDeck
30/03/2015 20:57	Been interviewing for Literacy Co-ordinators within the Trust - lots of mentions for @LearningSpy's book http://t.co/PpdLtc59n	1	0	TweetDeck
30/03/2015 20:40	Having smug mo after @redacted speech Inspection's Nearly Over! http://t.co/SqEoVgIpMH Long Live Peer Review http://t.co/l19sN9ucFL	2	1	TweetDeck
30/03/2015 19:03	Check out @redacted speech in http://t.co/12FTzsfQZ @redacted Inspection's Nearly Over! It's Official http://t.co/ghwzEclqMO	2	0	TweetDeck
30/03/2015 18:35	RT @redacted @redacted @redacted @redacted please RT http://t.co/XS4x72UOmU	8	0	Twitter for Android
30/03/2015 17:09	NEW POST Leadership in Complex Times http://t.co/ejpa8ADXfB Why Complexity Theory matters to school teachers and leader	1	0	TweetDeck
30/03/2015 11:36	Leadership in Complex Times by @redacted http://t.co/ejpa8AVyEb #SLTchat	2	1	Twitter for Android
30/03/2015	RT @redacted: Life After Levels - An Assessment Revolution? by @redacted	1	0	Twitter for

Created At	Text	ReTweet Count	Favorite Count	Source
11:33	http://t.co/cqMdpEueMc #SLTchat			Android
30/03/2015 09:03	RT @redacted @redacted - great post, think what you are going to say or do as a leader before you say or do anything http://t.co/jd...	1	0	Twitter for Android
30/03/2015 09:02	RT @redacted: Leadership in Complex Times http://t.co/BsoJKwb3C2 via @johnson	1	0	Twitter for Android
30/03/2015 09:02	RT @redacted: Life After Levels - An Assessment Revolution? http://t.co/Lb9SbtAdGJ via @johnson	2	0	Twitter for Android
30/03/2015 07:38	NEW POST Leadership in Complex Times http://t.co/ejpa8ADXfB An education system can outperform the quality of its teachers	0	2	TweetDeck
30/03/2015 07:20	RT @redacted: Scrap progress as a means of holding schools to account, heads' leader says http://t.co/drPQlqjmfl	8	0	Twitter for Android
30/03/2015 07:20	RT @redacted: Excellence is school leadership #ISTP2015 http://t.co/2qef0NeCGh	93	0	Twitter for Android
29/03/2015 23:37	@redacted @redacted Thanks Prof Coe. Really appreciate the response	0	0	Twitter for Android
29/03/2015 23:37	RT @redacted: Oldie, but goodie: Knots & Threads - Power of Networks (& trust) http://t.co/oC5ECvRfxV @redacted @redacted http://t.c...	1	0	Twitter for Android
29/03/2015 23:36	@redacted Thanks Karen	0	0	Twitter for Android
29/03/2015 23:36	RT @redacted: Life After Levels - An Assessment Revolution? http://t.co/JOAYlys6tk via @redacted Superb as always! A must ...	3	0	Twitter for Android
29/03/2015 22:54	Leadership in Complex Times http://t.co/ejpa8ADXfB Whether you're leading in the class room or the staff room life is getting more complex	2	3	TweetDeck
29/03/2015 22:25	Life After Levels - An Assessment Revolution? http://t.co/YRZjbJNJJD This is a curriculum opportunity not a data problem. Time 4 a rethink	8	10	TweetDeck
29/03/2015 22:02	NEW POST Leadership in Complex Times http://t.co/ejpa8ADXfB #SLTchat - Building social capital is a core role for school leaders	1	2	TweetDeck

Created At	Text	ReTweet Count	Favorite Count	Source
29/03/2015 21:56	RT @redacted: Apropos nothing: my recent articles on so-called 'free' schools, selection, and words: http://t.co/ja6vEjkH86	3	0	Twitter Web Client
29/03/2015 21:55	RT @redacted @redacted: It's takes courage to walk the right path when others are heading the wrong direction! http://t.co/iFTXTsCdGf	47	0	Twitter Web Client
29/03/2015 21:50	RT @redacted @redacted It does, thanks. Will ponder. P.s. A missed an opportunity to go down a pun-based "SOLOng to levels" title t...	1	0	Twitter Web Client
29/03/2015 21:44	@redacted 2/2 ... linked together to form ideas (2), combine ideas into theories/concepts (3). Hope that makes sense.	0	0	Twitter Web Client
29/03/2015 21:43	@redacted I don't think so but within a subject would be a degree of similarity e.g. Science grain sizes may be: individual facts (1), 1/2	0	0	Twitter Web Client
29/03/2015 21:30	@redacted Bit of balance between two probably needed - coach, mentor, direct, if needed, but don't get in the way?	0	1	Twitter Web Client
29/03/2015 21:30	Been massive post this week - people like some good news. Things are moving. Inspection's Nearly Over! It's Official http://t.co/SqEoVgIpMH	5	2	TweetDeck

App 6. Sample contact summary sheet

Contact Summary Sheet Form

Title of thesis: The use of Twitter by school leaders for professional development as their careers progress.

Name of contact:

Twitter handle of contact:

Date/time of interview:

Context of interview:

Main issues or themes that emerged during the interview:

Summary of information on key target areas:

- Why are they using Twitter?
- Who are they connecting with?
- How has Twitter helped (or hindered) their professional development?
- How do they think Twitter use might develop in the future in their context?

Additional thoughts:

App 7. Coding schema used in the analysis of interview transcripts

Code	Meaning
USE	Reason given for their use of Twitter
CON	Connectedness, or network comments
PROF	Mention of the role of Twitter in their professional development
FUT	Musings on the future of Twitter
POS	Other positive comments about Twitter in their professional life
NEG	A comment on the negative side of Twitter

App 8. Curated list of corrections made post-viva

	Recommendation...	... actions.
1.	Within the literature review, identify from the relevant literature effective components of 'traditional CPD' and show how Twitter addresses each of these.	<ul style="list-style-type: none"> • There is clearer signposting of the balance of the chapter from the outset (see list on page 21). • The chapter has been re-ordered slightly such that discussion of Twitter terminology/background comes first, followed by everything else (see page 25). • A new quote has been introduced on page 49 which neatly summarizes the central characteristics of effective traditional CPD. • Following on from this, the Post Web 2.0 career arcs section has been changed in several places to explicitly signpost where Twitter can be shown to be meeting some of Field's characteristics of effective professional development (see pages 51, 52, 53,57, 60, 63, 73, 100, 103).
2.	Also within the literature review show how Twitter, as a professional development tool actually adds something new, and also which aspects of traditional learning modes might be replaced by the user of Twitter.	<ul style="list-style-type: none"> • To deal with this criticism I have drawn together all the various new elements into a table (see Table 8 on page 85). This table shows how Twitter can be used to address the elements of effective professional development which Field regards as essential. This table signposts clearly how, according to the literature discussed up to this point, Twitter enhances, or in some cases replaces, more traditional methods of professional development. • I acknowledge in this table that there is little in the literature to suggest that Twitter is any more evidence-based/reliable than more traditional forms of professional development and cross reference other places in the thesis where the issue of reliability is discussed in more detail.
3.	Show how the contents of Tweets can be assessed for rigour (perhaps drawing on concepts of crowd sourcing, peer review and online reputations as concepts) – not dispelling the use of personal experience and common sense. Use literature to support the argument.	A new subheading has been inserted on page 61 specifically to deal with this issue and to reference some of the literature that surrounds it.
4.	Check and amend uses of NCTL and NCSL.	Consistency has been checked throughout and an explanatory footnote added on page 47.
5.	Include in the research design chapter how the project was informed by 'netnographic approaches', notably how	<ul style="list-style-type: none"> • The research methods section has been extended to make the point that netnography uses both quantitative and qualitative methods (see page 113). • Triangulation of one method with another is expanded

	Recommendation...	... actions.
	electronic, quantitative methods can enhance what is essentially a qualitative study.	on further on page 123.
6.	Present a timeline for the research activities undertaken, and when one method serves to triangulate with the other, as well as how the latter activity generated more information.	<ul style="list-style-type: none"> • A timeline showing the research activities undertaken is shown in Figure 29 on page 115. • Triangulation is mentioned repeatedly on page 123 but I have also beefed up reference to the one method complementing the other on page 119.
7.	In the presentation of findings give an explicit explanation of why the sub-headings were used to form an analytical framework, linking back to the literature review and pointing out how new themes/categories emerged from the research undertaken.	<ul style="list-style-type: none"> • At the start of the presentation chapter I have added some new paragraphs to explain the rationale for allowing themes and headings to emerge as the research progressed rather than pre-judging what might be found by devising the themes and headings beforehand (see page 133). • Under each of the headings detailing the emergent themes I have explicitly referenced back to authors discussed in the literature review chapter. In some cases I have made the point that the study's findings mirror those of earlier authors, in other cases I have suggested that the findings are new or extend the work of earlier authors (see pages 138, 143, 150, 155, 165, 171, 173, 174, 177, 178).
8.	Tidy up references, and remove the sentence at the beginning of the reference list.	Sentence removed (see page 229); all references checked for consistency.
9.	Check if any screenshots have been copyrighted and seek permission for scanned images of charts and graphs etc.	<ul style="list-style-type: none"> • Figure 1 on page 2 replaced with a graph using the original figures and clearly referenced. The Twitter bird in Figure 3 on page 7 has been replaced by a similar bird that is available for use under creative commons licence. • In displaying Tweets anywhere in the thesis I have rigorously followed Twitter's display guidelines as explained in the footnote on page 58. All other diagrams have either been removed or permission to use has been sought/a creative commons version has been obtained as necessary. Where is a need copyright information has been placed in the captions (see Figure 6, Figure 17, Figure 18, Figure 19, Figure 20, Figure 21).

I hope you enjoyed reading this. I look forward to meeting you online :-)

@tjteacher