Using Facebook as a tool in Initial Teacher Education

Ruth Edwards

Education School, University of Southampton

This report leads from findings of an earlier research project in which pre-service mathematics and science teachers identified areas where they felt they needed greater support during their training year. In September 2011 a closed group was set up on the social network site Facebook as a support mechanism for a cohort of pre-service secondary mathematics teachers. The rationale was that the Facebook group, which was established as a 'secret staffroom' would provide a common, yet secure area where the pre-service teachers could share ideas and resources as well as engage in discussion about their progress on the course. Analysis of the data collected from the interactions that took place identifies the frequency and ways in which the social network site has been used during their training year and first year of teaching. These findings are contrasted with the results of a series of attitudinal questionnaires completed by the participants at various stages of these two years. The results indicate that Facebook can be used to support pre-service teachers; however there remains a challenge in using social networking to support teachers in their first year of teaching and beyond.

Keywords: STEM, social network, teacher training, mathematics

Introduction

In 2011, Edwards & Hyde carried out a research project to examine the reasons why secondary science, technology, engineering and mathematics (STEM), specifically mathematics and science, trainees may be unsuccessful on teacher training courses (Edwards & Hyde, 2011). One of the four common themes identified through individual interviews and discussion groups as having a major impact on the progress made by trainees was isolation on teaching practice. A number of factors contributed to a trainee feeling 'alone': being the only trainee in the school, perception of insufficient support from their school mentor and not having someone within their family or friendship groups who understood the pressures associated with undertaking a teacher training course and with whom they could discuss their concerns. The structure of the Post Graduate Certificate in Education (PGCE) course does not help to address the problem of isolation as trainees only spend a short period of time in university sessions before starting their initial teaching placement. There is insufficient time to form any common support group and whilst social network groups had previously been used by some trainees they were not all inclusive. In addition, the University's Virtual Learning Platform, Blackboard, which features a discussion board was seen by trainees to be restrictive.

Social network sites have been present on the internet since the late 1990s, with Facebook being founded in 2004. Since that time there have been a number of studies conducted exploring their potential in education from elementary (Lee et al., 2013), to doctoral level (Ryan, Magro and Sharp, 2011). Ellison, Steinfield and Lampe (2007) argue that using social network sites could have positive gains in social

capital for individuals allowing them to draw on resources from other users of the network. In addition they found that Facebook usage interacted with measures of psychological well-being, suggesting that it might provide greater benefits for users experiencing low self-esteem. Tynes (2007) in her study of adolescent use of social network sites suggested that the act of writing in a discussion forum created time for the participant to reflect on the sequence of entries and posts made by others in order to carefully construct their own post for others to read. Such an act would be helpful in supporting the development of the reflective practitioners that we would wish all teachers to be. Furthermore, studies such as those of Pilgrim and Bledsoe (2011) and Koskeroglu Buyukimdat et al. (2011) have identified that social network sites could be used as a tool to extend and enhance pre-service teachers' professional development. The aim of this study is to evaluate pre-service and newly qualified mathematics teachers' perceptions of the usefulness of being part of a Facebook group and the ways in which they are using it.

Methodology

This report includes quantitative and qualitative findings collected from the pre-service mathematics teachers involved in the study. Thirty-nine of the forty mathematics trainees invited joined the 'virtual staffroom' on Facebook. Ethics approval was obtained and all the trainees who had joined the group received an information sheet that outlined the purpose and length of the study and information about confidentiality.

At the time of writing the trainees have been surveyed as to their perceptions of the usefulness of using the 'virtual staffroom' on four occasions; at the start of the project, halfway through their first school placement, at the end of their PGCE year and at the end of their Newly Qualified Teacher (NQT) year. The first three surveys were short paper based questions which were distributed and completed at the end of a University teaching session whilst the fourth was hosted by University of Southampton isurvey (https://www.isurvey.soton.ac.uk) and sent to the NQTs via a link in an invitation email.

At the end of each year the activity data were 'captured' from the Facebook 'virtual staffroom' group for analysis. A simple thematic coding was used to categorise participants' posts. The subjects of the posts fell mainly, into seven categories: university work, course administration, subject knowledge, sharing of resources, sharing news reports, pedagogy and course tutor input. University work included questions about the format for submissions and how to reference; Course administration included setting up a group discount for a NSPCC course, course representatives asking for comments to feed back to the student liaison committee, asking questions about the course such as what percentage timetable should be taught or how many official observations were required at particular stages of the course; Resources included sharing resources with others as well as requesting resources. An eighth category for 'other' was also created which included looking for jobs and arranging social events.

It was perceived that ownership of the group could be an issue. Harriet Swain writing in the Independent cites findings highlighted in a survey carried out by Ipsos Mori for the universities' joint information systems committee (JISC). "It showed that 65 per cent of sixth-formers hoping to go to university regularly used social-networking sites. But most failed to see how they could be used for teaching, and said that they resented the idea that they might be invaded by academics." (Swain, 2007).

Previous cohorts had formed their own social network groups keeping in contact with each other either through a social network site or by text or e-mail. These groups had however tended to be selective in membership rather than inclusive of all. Ryan (2011) found that discussions on Facebook helped to build communities amongst doctoral students. Her research shows that these discussions aided in various types of knowledge exchange, helped to minimise the anxieties of starting a new course and were useful in promoting socialisation and community amongst the students.

Tutors wanted every trainee on the course to have the opportunity to join the group and to be aware of any discussions that were taking place on the site. In this way trainees would be able to self-select their position between 'active participant' and 'silent observer'. As tutors were also part of the group they would be able to intervene and offer support when required. Swain (2007) describes how Jo Fox, a professor at the University of Durham was invited by her students to join their Facebook group through which she picked up on their discussions, subsequently following some of these up in her seminars. It was hoped that the trainees would welcome rather than reject tutor participation within the group.

As not all the trainees wanted to be included as a member of the Facebook group tutors on the course had to be careful not to use the Facebook page in a way that could disadvantage any trainee who had chosen not to take part. As a result it was decided that tutor input to the page would be minimal.

Results and Findings

Analysis of the 'questionnaires'

At the start of the course trainees were asked only one question, "How useful do you think the Facebook staffroom is likely to be to you when you are in your teaching placement?" Their responses (97% return) to this were generally positive indicating that they thought it would be helpful for keeping in touch with others on the course, sharing ideas and resources, resolving problems and asking questions that were not serious enough to trouble their mentor or tutor. A few, however, noted that whilst they saw it as quite useful they felt that as the Facebook 'virtual staffroom' page would be looked at by tutors on the course, use was likely to be more restrictive.

When surveyed halfway through their first teaching placement the trainees were asked two questions. Their response rate is summarised in Table 1.

Halfway through first teaching placement	November 2011 N=39 (100% return)
Overall, how helpful have you found the Facebook 'virtual staffroom'? *Very helpful (5) – Unhelpful (1)*	3.9
Overall, how helpful have you found sharing resources on the Facebook 'virtual staffroom'? *Very helpful (5) – Unhelpful (1)*	3.9

Table 1. A summary of trainees' perceptions of the usefulness of the Facebook 'virtual staffroom' halfway through their first teaching placement

Trainees felt that the Facebook 'virtual staffroom' worked well as a method of communication, it had been useful to have the site where they could share ideas, thoughts and resources and it was, as one trainee commented, "good to know problems are not unique to me".

When surveyed at the end of their PGCE year the trainees rated positively the helpfulness of the 'virtual staffroom' although many admitted to being 'silent

	End of PGCE year N=33 (90% return)	End of NQT year N=26 (54% return)
Overall, how helpful have you found the Facebook 'virtual staffroom'? *Very helpful (5) – Unhelpful (1)*	4.1	3.0
How would you describe your participation within the Facebook 'virtual staffroom' *Active participant (5) – Silent observer (1)*	2.4	2.0
How frequently do you visit the Facebook 'virtual staffroom' each week? *Most days (5) – never (1)*	3.1	1.7
In which of the following ways have you used the Facebook 'virtual staffroom'?		
• Asking questions about the structure of the course	56%	15%
• Asking questions about the documentation for the course	67%	23%
• Organising events	19%	36%
• Sharing articles with other trainees	19%	8%
• Sharing resources with other trainees	48%	64%
Do you feel the Facebook 'virtual staffroom' has helped your confidence whilst on school placement/in your NQT year? *Very helpful (5) – Unhelpful (1)*	3.4	2.6
Do you anticipate using the Facebook 'virtual staffroom' during your first/next year of teaching? *Very likely (5) – Unlikely (1)*	3.7	2.5

observers' as opposed to 'active participants' on the page (see Table 2).

Table 2. A summary of trainees' perceptions of the usefulness of the Facebook 'virtual staffroom' at the end of their PGCE and NQT years

Their comments spoke of being reassured by its presence, making them feel part of a group and it being a good tool for communication. More than one of the trainees admitted to having read all of the posts yet rarely contributing to the discussion unless they were very sure of the answer and some trainees only visited the page if they had a question to ask themselves. The ways in which the trainees admitted to using the Facebook 'virtual staffroom' mirrored the results found through analysing the data from the site (see Table 3). However it also became apparent that the trainees had set up a second private PGCE Facebook page through which they had been organising social events. It is not known whether or not all the trainees were included within this group. Some trainees made specific comments about how they felt having the page had helped to build their confidence whilst on school placement,

> Just knowing that you have a private way of talking to people builds confidence, especially when you are feeling down.

> It has been useful, it definitely was a good idea and I like having it there for support etc. but didn't really think I used it effectively.

Others however viewed it as having been a useful place where they could gather information rather than support. Trainees had mixed feelings about whether or not they would continue to use the page during their NQT year for anything more than catching up and gossiping!

Percentage posts/comments	University work	Admin	Subject Knowledge	Resources	News	Pedagogy	Tutor	Other
PGCE year	27.6	25.1	0.1	32.1	0.3	0.1	1.2	13.5
NQT year	0.0	0.0	11.7	38.9	0.0	0.6	2.5	46.3

Table 3. Percentage of posts in the 'virtual staffroom' for each category

The comments made by the teachers who responded to the online survey at the end of their NQT year were similar to those made at the end of their PGCE year, indicating that they felt that the Facebook page was "very good to act as a support network and a place to share resources tips and experiences". However one teacher observed that, "as not many people posted on it, I didn't use it much". They noted that interest in using the page tailed off as the year progressed. Despite this, the teachers' responses to the survey clearly indicated that they valued the presence of the page,

> It has given me access to a support network and a place to see and ask the questions that come up throughout the year

> Good to know others are around

> It has been helpful although not as significant as face-to-face contact with colleagues and former trainees from the PGCE course

> It helps to know you're not alone and others are going through *it too!"*

One teacher observed that the lack of use may have been because students still used their shared Dropbox and had less need to share resources whilst another commented that they perhaps should have used it more during their NQT year to ask questions and get support. None of the teachers' indicated that they planned to use it in their subsequent year of teaching beyond contact for social means.

Analysis of the Facebook 'virtual staffroom' data

The data gathered from their 'virtual staffroom' page were analysed to find out how and for what the trainee/NQTs had used the Facebook group during each of the two years. Each month was divided (roughly) into four, week-long periods and the number of posts and comments on each post recorded (see Figure 1).

During their training year, 55% of the 39 trainees made original posts and 84% made one or more comment on a post. Of the 26 trainees who started the NQT year, 35% made posts and 58% commented on posts. As might be expected the teachers instigating discussions were those who had used the site most frequently during the PGCE year. During their NQT year there were 30 posts and 136 comments on those posts as compared with the 133 posts and 657 comments on those posts made during the PGCE year. As can be seen from Figure 1 the frequency of usage of the site declined over the two year period.

The data were also analysed to find out what medium the trainee/NQTs were using to access Facebook. Just under 10% of the posts during their training year and 7% during their NQT year were made from a mobile phone, the remainder having been made from a computer
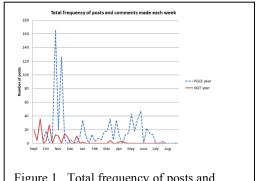

Figure 1. Total frequency of posts and comments made each week during the PGCE and NQT years
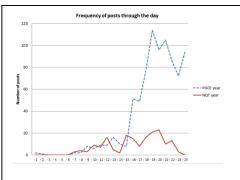

Figure 2. Frequency of posts through the day

The frequency of posts and comments through the day is summarised in Figure 2 above. The number of posts and comments increased dramatically from the end of the school day reaching a peak between 1900 and 2200 with some trainees still engaging in discussions into the early hours of the morning. In contrast during their NQT year conversations had ended by midnight and were more likely to occur during the working day.

The total number of posts and comments on posts each month were reasonably consistent throughout the PGCE year with two significant outliers. During the last week of October the trainees had university tasks to complete which led to five distinct posts amassing over one hundred comments. These contributed to the first peak visible in the graph in Figure 1, with the second peak related to setting up the Dropbox account.

The posts relating to university tasks occurred shortly before the deadline for an assignment. The content of these posts tended to be generic questions about referencing and paperwork required for submission. Similarly the posts relating to course administration fitted with the requirements of the course at any particular time.

In total there were four posts relating to subject knowledge. The first two received little or no comments were an observation about the definition of a directed number and a request for a glossary of terms of 'teaching jargon'. During their NQT year the two posts made instigated some interesting discussion:

> Nearly bottom set year 8s, BIDMAS for the first time, they're getting the hang of it, they follow the rules of BIDMAS and I feel successful, improvise big question on the board, after a few operations I'm left with this: 25 - 2 + 2. Addition comes before Subtraction in the (flawed) BIDMAS system, how would you explain the answer isn't 21? Fortunately someone said the answer was 25 and I said yes and moved on briskly, but it was scary for a moment there

> Can a kite be a rhombus? Is a kite with four equal sides still called a kite? Any ideas?

Trainees shared resources frequently through the course of the year. Early in their first school placement they set up a Dropbox account so they could share resources,. Most were generic websites for mathematics resources such as the Guardian, Nrich and the Khan Academy although some were sites with enrichment activities for the history of mathematics, mathematics and science, mathematics jokes and You Tube clips. Trainees also shared editing and presentation software as well as scanned copies of other resources they had found interesting and useful. On several occasions a request was posted asking for a resource relating to teaching a particular topic or for a resource that they had seen used in a university session. Other requests for resources were to support the teaching of data handling, linear graphs, circle theorems, trigonometry, indices, loci and construction. Most of the resources posts during the NQT year were repeated requests for resources that the teachers had seen during their PGCE year, the most common of which was for a specific piece of geometry software. Only one new resource was shared without being requested.

Tutor input over the two year period was minimal as on most occasions the trainees resolved any problem or issue that had been raised themselves. Course tutors posted on the page on six occasions through the first year. Early in October when the page was first set up to encourage the trainees to use the 'virtual staffroom', in late October in response to a large volume of discussion relating to university tasks, in

early December to remind trainees about an ICT conference and finally in the first week of March. This last posting was related to a point in the course when tutors were aware that some trainees may be feeling overwhelmed. Tutors posted a comment pertaining to this to which several trainees responded, gratefully saying that they were comforted to know that the way they were feeling was not uncommon. One trainee wrote "your advice and contribution this week was a great relief and comfort. Thank you". Tutors posted three times during the second year: to wish the new teachers good luck for the forthcoming year, to remind them to complete the NQT survey and to remind them to keep in touch

Finally, the 'other' category included sharing advertisements for jobs, the organisation of an end of year social event, the arrival of PGCE certificates, NQT induction events and the management of the Dropbox.

Concluding remarks

From the data gathered during their PGCE year it is clear that the main reasons the trainees used the 'virtual staffroom' were asking for support and guidance on university based tasks, asking administrative questions and sharing resources. These findings support those of Wong et al. (2012) who identified that first year degree students were using Facebook for group discussions on assignments and projects, concluding that the social network site was being used effectively to promote an online community and enhance online learning among students.

The most notable reasons for posts, questions relating to university work and course administration, ended with the PGCE course. The group maintained their shared Dropbox account into the NQT year and, as developing teachers it is assumed that the participants were starting to establish their own personal set of classroom resources and rely less on others for support in this area. Assumptions can also be made that as employed teachers the participants were developing their own personal support network within their department or school. Their comments however clearly show that they continued to value the 'secret staffroom' as a place they could go should they need support, thus contributing in some small way to combating isolation and increasing confidence. There is no evidence from the teachers' posts that using the site helped their development as reflective practitioners. This may be related to the level of participation of the members of the group and the tutors on the course. Sample size is a limitation for any generalisations made from the findings of this study, as are the dynamics of the group. Tutors on the course kept their contributions to a minimum and some of the cohort set up their own independent Facebook group. It is impossible to know how this alternative site was used, by whom and whether or not its existence impacted on the way in which the 'virtual staffroom' was used. As a 'security blanket' for novice teachers the 'virtual staffroom' was successful. However there is clearly scope for its development both within and beyond the training year.

Berg (2007) proposed her university could use Facebook in a number of areas including tutoring, study groups and counselling. Schwartz (2012) examining how teachers use social networking notes that "general social networking sites, as well as education-focused sites, have emerged as powerful tools for teachers in the last several years. They combat the isolation of the classroom and can provide forward-thinking teachers with a community that shares their views". Bewell, a tutor on the PGCE course at the University of York advocates the use of social media to help "teachers keep up to date and enhance their CPD" (2013). Research by Pilgrim and Bledsoe (2011) and Koskeroglu Buyukimdat et al. (2011) into the use of social

networks as a tool to expose trainee teachers to trends and issues in education as well as online access to professional organisations support this claim. However in each of these studies, as with the work of Ryan (2011) the tutors were not passive. In each instance they 'led' the trainees.

Each academic year a new cohort of mathematics teachers join this 'virtual staffroom' bringing with them fresh ideas. All members of the group need to consider how and when it can be used to maximise its potential: who will post and their reasons for doing so. As an established shared community the opportunity for continued professional development is boundless.

Acknowledgements

References

Berg, J., Berquam, L. & Christoph, K. (2007) Social networking technologies: A ''poke'' for campus services. *EDUCAUSE Review* 42(2): 32–44.

Bewell, S. (2013) Language teachers staying connected *ALL Online journals* http://journals.all-languages.org.uk/2013/10/languages-teachers-staying-connected/

Edwards, R. & Hyde, R. (2011) Supporting STEM: working with ITE trainees in STEM subjects to increase success Escalate funded project final report available from http://dera.ioe.ac.uk/14763/

Ellison, N.B., Steinfield, C. & Lampe, C. (2007) The Benefits of Facebook "Friends:" Social Capital and College Students' Use of Online Network Sites. *Journal of Computer-Mediated Communication,* 12: 1143-1168.

Koskeroglu Buyukimdat, M., Albayrak, D., Ugur Erdogmus, F., Yildirim. S., Eryol, G. & Ataman, Y. (2011) *Ahi Evran Üniversitesi Eğitim Fakültesi Dergisi,* 12, (2): 119-134

Lee, J., Koo, Y., Lee, Y., Kim, J. & Lim, J. (2013) Teacher and Student Perspectives on Utilization and Effectiveness of using Social Networking Service in Elementary School. *The Journal of Educational Information and Media,* 19(1): 25-54.

Pilgrim, J. & Bledsoe, C. (2011) Engaging Pre-service teachers in learning through social networking. *Journal of Literacy and Technology* 12(1): 2-25

Ryan, S., Magro, M.J. & Sharp, J.K. (2011) Exploring educational and cultural adaptation through social networking sites *Journal of Information Technology Education,* 10: 1–16.

Schwartz, K. (2012) 'For Advice, Ideas and Support, More Educators Seek Social Networks' MindShift available from http://blogs.kqed.org/mindshift/2012/12/for-advice-ideas-and-support-more-educators-seek-social-networks/

Swain, H. (2007) Networking Sites: Professors - Keep Out *The Independent.* available from: http://www.independent.co.uk/student/student-life/technology-gaming/networking-sites-professors--keep-out-397100.html

Tynes, B.M. (2007) 'Internet Safety Gone Wild?' *Journal of Adolescent Research,* 22(6), 575-584.

Wong, K., Kwan, R., Leung, K. & Wang, F.L. (2012) Exploring the Potential Benefits of Facebook on Personal, Social, Academic and Career Development of Higher Education Students. In Cheung, S.K.S., Fong, J., Kwok, L.F., Li, K. & Kwan, R. (Eds.) *Hybrid Learning* (pp. 253-264). Berlin Heidelberg: Springer.