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**'What goes on in there?' How post-graduate trainee teachers make use of an online learning community using social networking sites?**

Teacher Education Advancement  
Network Journal  
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Vol 12(1) pages 85-96

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**Abstract**

This study explores the role that social networking sites play in the learning of post-graduate trainee teachers. It is part of a larger study that explored the role that technologies played in student learning via a Networked Learning framework. It draws upon the content posted to closed groups on social network sites, such as Facebook and WhatsApp, to explore two aspects of the impact these groups have.

Firstly, the impact on social cohesion; in other words, how the social network site groups support interaction online and subsequently, face-to-face interactions. Secondly, the impact on learning that interactions in these groups has. It uses a threefold analysis strategy: the temporal distribution of usage, the context for interactions and the topic of interactions.

It finds that there is a strong social element to student interactions which includes interactions relating to social activities but also interactions which provide moral support and encouragement as well as elements of humour. In addition to this are learning related interactions. These are widespread and cover both academic and professional learning. However, this is largely limited to interactions related to details, support, help and guidance rather than profound theoretical discussions.

The survey combines the analysis of the content and context of interactions with a temporal analysis of interactions to explore how the use of these interactions changes in relation to key events in the course such as assignment submissions or school placements. It finds that the participants are discerning users who adopt a functional approach to social network interactions. They make extensive use of such sites prior to assignment submissions or the release of assignment feedback. But, on the other hand, at times of high workload, such as school placements, they will prioritise activity with the greatest potential impact on their success. In other words, they do not allow themselves to be overly distracted by social networking.

It concludes that the social network site groups play an important role in supporting students to succeed on a busy and stressful course. Also, that students draw on social media in equal measure for social cohesion and learning related interactions. However, it must be noted that the learning interactions are typically around-task interactions rather than interactions at the heart of their learning.

**Keywords**

Teacher education; social network sites; online community; social media; Facebook; WhatsApp.

**Introduction**

Social Network Sites (SNS) are commonplace in society and it is of little surprise that students make use of them. What is often unknown is how students make use of them and what impact they have on learning because they are often closed groups that tutors are excluded from. This research aims to

**Citation**

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provide an insight into this through the analysis of SNS content to explore three aspects of student SNS usage. Firstly, by looking at when students interact on SNS, secondly, by looking at why they are using SNS to interact and, thirdly, by exploring what they discuss when interacting using SNS to shed light on when, why and what they talk about. This threefold analysis will provide insight into patterns of usage along with an understanding of the students' purpose in using them. The work begins with an overview of research into the role of SNS within higher education. It is part of a larger, doctoral study which explored students' use of technologies to support their learning through a Networked Learning framework. This work has a particular focus on student-student interactions as these are often unseen by tutors.

In relation to research and literature relevant to the role of SNS within higher education, there is a body of work which has looked at the use of SNS as virtual learning environments (VLEs), in other words as locations to host formal teaching and learning activities (e.g. Meishar-Tal et al., 2012; Shaltry et al., 2013; Tess, 2013; Miron and Ravid, 2015; Nkhoma et al., 2015; Karimi and Khodabandelou 2013; Manca and Ranieri, 2013). There is another body which considers the use of SNS by students as a social tool, in other words, how learners make use of SNS to establish and maintain social bonds which are not directly related to learning activities (e.g. Donlan, 2014; Madge et al., 2009; Fewkes and McCabe, 2012; Blankenship, 2011; Petrovic et al., 2013; Kirschner and Karpinski, 2010; Tkalac Verčič and Verčič, 2013; Belangee et al., 2015; Lin et al., 2013; Rap and Blonder, 2016; Vivian et al., 2014).

However, neither of these areas are directly matched to the focus of this study. Thus, it is the area of SNS as a third-space which is not for formal learning but is not purely social and provides a medium for interactions related to learning or around learning which this study will make a contribution to and is discussed in the next paragraph.

### **SNS as a third-space**

This is an area where the body of literature is not very broad. The use of the term 'third-space' follows from the work of Aaen and Dalsgaard (2016) who used the phrase to describe how Danish school pupils would use social media to support one another with homework and assignments. It reflects the fact that it is not being used as an educational space nor is it solely being used for social purposes (as discussed previously) and that it is being used somewhere between the two. Examples of this include discussing assignments, course related tasks, course deadlines and practicalities such as how to submit assignments. In previous work, Dalsgaard (2014) had noted how widespread this use of SNS was amongst Danish pupils, particularly when they were self-organising to support one another to help with homework. It was noted that SNS has the potential to help support peer-to-peer learning with a key feature being the absence of a teacher. This is another feature of third spaces: that they are student generated and managed by students without input from tutors.

Other work of a similar nature has found comparable outcomes, for example, Lampe et al. (2011) also found that students would use SNS make arrangements and to organise class-based activities. The impact of SNS amongst undergraduate students in Sweden to help them understand academic norms and complete tasks was the focus of work by Cuesta et al. (2016) and it was found to be a valued tool for this by the participants.

The work of Selwyn (2007 and 2009) also looked at the way that undergraduate students used SNS and noted the distinction between social interactions and interactions related to learning. The learning related interactions were classed as the sharing of practical information such as times or locations of lectures and the exchange of academic information. Whilst these were used to a limited extent, they were both felt to form an important and valuable element of university learning. These findings are frequently referred to by other researchers in this field who have come to similar conclusions such as Junco (2011) who identified a variety of ways that students use SNS for social purposes but also found

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that these were supplemented by uses of SNS that had an impact on academic outcomes. In other words, it was being used as a third space and it was found that SNS interactions could have a consequent impact on face-to-face learning through strengthened social interactions. Kio and Negreiros (2013), in a study of undergraduate students in Macao, identified the value that students placed on SNS to support them to maintain unity and social bonds in class cohorts. Likewise, Manasijevic et al. (2016) found a positive regard for the value of SNS friendships in relation to real-life friendships and classroom interactions and discussions.

As has been mentioned, these positive findings relate to SNS where the teachers are absent. To highlight the importance of this it is worth considering the findings of Sendurur et al. (2015) who found that SNS was widely used to keep in touch with friends and to maintain existing friendships. They also found that a significant majority of participants viewed the idea of interacting with tutors via SNS in a negative way.

In summary, there have been a number of studies that have researched the role that SNS can play for learners as a third-space. This can be described as a space which is not part of the formal learning environment, nor is it entirely social; rather it exists somewhere between the two. They are characterised as being student created spaces where tutors are absent. Whilst they do not typically host in-depth or deep learning related interactions, they are considered to be important places that play a positive role in student outcomes and any related face-to-face learning interactions.

### **Research context**

In England and Wales for those who already have a first degree, a common postgraduate route into teaching is via a post graduate certificate in education (PGCE). School Direct (SD) provision of such PGCE programmes is done through partnerships of alliances of schools working in conjunction with a partner university. These partnerships work together to recruit, train, assess and accredit students. The university in which this research is based is in the North West of England and works with 15 SD alliances to offer approximately 180 places per year to prospective teachers. Within this university, SD training is based in the lead-school in the SD alliance rather than on the university campus. The number of students in each alliance is typically between 12 and 25. This means that the annual cohort of students is geographically dispersed and isolated from students in other SD alliances.

During the academic year, each student will be based in a school within their alliance where they will spend 3 days per week engaged in school-based learning. The other 2 days per week the students are together in their group in taught sessions relating to modules on their course. Thus, they are geographically separate from other groups of students and also separate from one another for much of the time.

It has been noted that the students tend to use common social networking sites (SNS) such as WhatsApp and Facebook. This means that, while the teaching and learning on the course takes place in face-to-face lectures and seminars, students are making use of closed groups on SNS and the role that this plays in their learning is uncertain.

### **Research aims and question**

The aim of this research is to provide a better understanding of the way post-graduate initial teacher trainees use SNS in relation to supporting social cohesion and enhancing their learning. This aim arises out of the context described above and the limited depth of published work in this area. The specific question this work aims to answer is:

How post-graduate trainee teachers make use of an online learning community using social networking sites?

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This will be broken down into two sub-questions:

- To what extent does the use of SNS support learning amongst post-graduate trainee teachers?
- To what extent does the use of SNS support social cohesion amongst post-graduate trainee teachers?

### **Methodology and method**

This research is an exploration of how students experience an online learning community and aims to build an understanding of the social reality that the participants create through their interactions. On the premise that the social reality of the participants is socially constructed, it follows that these social realities should vary between different groups of participants and that an interpretation of this experience will be the outcome rather than a universal truth. The impact of these factors has led to the selection of case study as the research design.

For this qualitative study, a sample of 4 alliances were identified using a purposive sampling strategy as they represented different geographical locations, different sized cohorts, different tutors working with them and different choices of SNS. This led to 62 participants in total from groups of 19, 15, 14 and 14 from the four participating alliances. The duration of the study was from 01 September 2016 to 07 March 2017. All four participating groups agreed to provide transcripts of the content of their closed Facebook or WhatsApp group posts details of how this was done in an ethic manner are presented in the next section.

The data from all four was then combined for subsequent analysis. The data collection period comprised the first two thirds of their course. Details of the content analysis and coding methodologies are presented subsequently.

### **Ethical considerations relating to the use of SNS data and data collection process**

The SNS data for this study comes from closed groups that the students have created and thus there is a stable and known membership this means concerns relating to the challenges of gaining informed consent and providing confidentiality and anonymity as highlighted by Aaen and Dalsgaard (2016) do not apply. Ethical approval for the research was granted prior to commencing.

For reasons relating to the ethical consideration of the right of participants to withhold their data and also from a research perspective of not wishing to influence student interactions online, it was decided to adopt the following approach to collecting data from SNS. A third party, commercial service was used who made an archive copy of the content of the groups. This was shared with the participants who could then search for their own content and flag any posts that they did not wish to be part of the study. The third party then removed these elements and allocated each participant a pseudonym. The anonymised copy was shared once again with the students for approval before a copy was provided for analysis. This process meant that protection for students was offered at two levels; a student could choose not to provide any of their data even if the rest of their group agreed (this option was taken by one student, whose data was removed by the third party before the data was provided for analysis), and secondly, specific elements of data could be removed if students were not happy for it to be part of the study (it is suspected that this took place as there are some evident gaps in discussions). Whilst this leads to gaps in the data, (the scale of which is unknown), it strikes a balance between providing a data set of suitable size to respond to the research question whilst maintaining protections for participants.

### **Data analysis**

A two-fold approach to the analysis of data has been adopted in order to provide optimal insights into the research question. Firstly, a temporal analysis of interactions taking place via SNS. As all the posts

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that are made to both Facebook and WhatsApp are 'time stamped' they include data about the date and time the posts were made. (The only exception to this relates to a problem with the extraction of the data from one cohort which meant that the comments from students were not date stamped.) This allows for an analysis of the frequency of posts over the duration of the study period.

Secondly, a content analysis of the contributions made by students. The content analysis was further broken down into two elements: an analysis of content based on the context of the discussion and an analysis of the content based on the topic of discussion. This two-fold approach is adapted from the work of Aaen and Dalsgaard (2016) and Selwyn (2009). Individually, their coding structures address what students are talking about and why they are interacting via SNS, by adapting and combining them they will provide richness to the analysis to understand how and why they are using SNS within their learning. Due to the way that discussions appear on SNS and how they run on over several posts, the SNS was analysed at a semantic level. Each semantic section of text was coded using two sets of codes, the first using a context code that was derived from Aaen and Dalsgaard (2016) and the second a content code derived from Selwyn (2009). These codes are presented in table 1.

**Table 1.** Showing the context and purpose codes applied to semantic blocks of SNS content (based on work by Aaen and Dalsgaard (2016) and Selwyn (2009)).

Aspect	Codes	Description / 'Typical' example
Context codes	Assignments	Discussions that relate to assignments in any form 'just trying to find research that will guide me and I'm struggling. This week after I've done my reading, I'm going to knuckle down. Feeling Slightly overwhelmed! 😊😊😊'
	Placement	Discussions about school placements 'I was totally dippy, was not meant to reveal the picture in the story as the children were meant to draw the scene from their imagination... However I held the book up for them all to see aaarrgghhhhhh! Managed to save myself by reading another scene but was not as good to draw! I'll get there, slow progress!'
	Jobs	Job searches, vacancies, applications, interviews etc 'Oh Jesus! I can't even write a paragraph. I'm rubbish at job applications'
	Details	Where the details of times of training, locations etc form the basis of the discussion 'Does anyone know what time xxxxx's lecture starts tomorrow?'
	Workload	Conversations about how much needs doing on the course 'It's hard work.'
	Social	Discussions about social activities such as nights out 'That way everyone can eat/drink - go on the lash and head home as and when they want.'
	Tasks	Where the topic is related to things that need doing or completing as part of the course. 'Is the ten minute discussion on our assignment on Thursday 13th October? For the individual presentation thing?'

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	Misc	Other discussions that do not fit into the other named categories
Topic codes	Affirmation	Where posts are seeking affirmation from others e.g. Am I doing this right? 'Quick question. When you log into blackboard, does it come up with a list of modules etc for you yet? Mine doesn't, just seeing if anybody else's does/doesn't!!'
	Banter	Humorous exchange, joking ' "I would like to present to the cohort collective, (PPL) and (UPL) my formative proposal on peer assessment within Assessment for Learning.....through the medium of interpretive dance" '
	Bonding	Where the aim is to strengthen social bonds e.g. social meetings, emotional support / 'hes really cool with everything so i can imagine UPL will be aswell, good luck youll smash it! :)'
	Details	Finding or providing details about the course 'Tomorrow I have an email confirming the training is 1.30pm at xxxxxx School. Has anyone been told any different?'
	Help	Where the thread goes beyond simple provision of details and offers support such as ideas for teaching activities 'Just a quick question, any of you guys with PE degrees any ideas on where I can find coaching points so I can plan a lesson (jumping in athletics). Struggling to find what I need!! 😊'
	Misc	Where the purpose of the thread does not fit any of the other categories

**Findings**

The frequency of posts per week across the three groups whose posts were time stamped is presented in figure 1. This is annotated to show the week in which the students carried out a presentation about their assessment progress to the rest of their group as well as the submission dates for two assessments and the subsequent return of feedback. It also shows the periods of assessed school placements when students are in school five days per week and consequently do not have any interaction with one another other than via SNS.

Figure 1. shows a pattern on activity at the start of the course which reaches a peak of 202 posts within a one-week period in the run up to the presentation activity. Following this there is a dip in activity until the period prior to the submission of the first assignment and the start of the first placement. During the first placement there is a low level of activity (compared to previous weeks) until the week following the release of feedback on the assignment. Activity begins to rise in the run up to the Christmas break before falling during the holiday period. There is less of a peak in the weeks prior to the submission of the second assignment but there is a notable spike in activity around the time when the feedback on this assignment is released. After the end of the second placement, there is a moderate level of use until the end of the research period.

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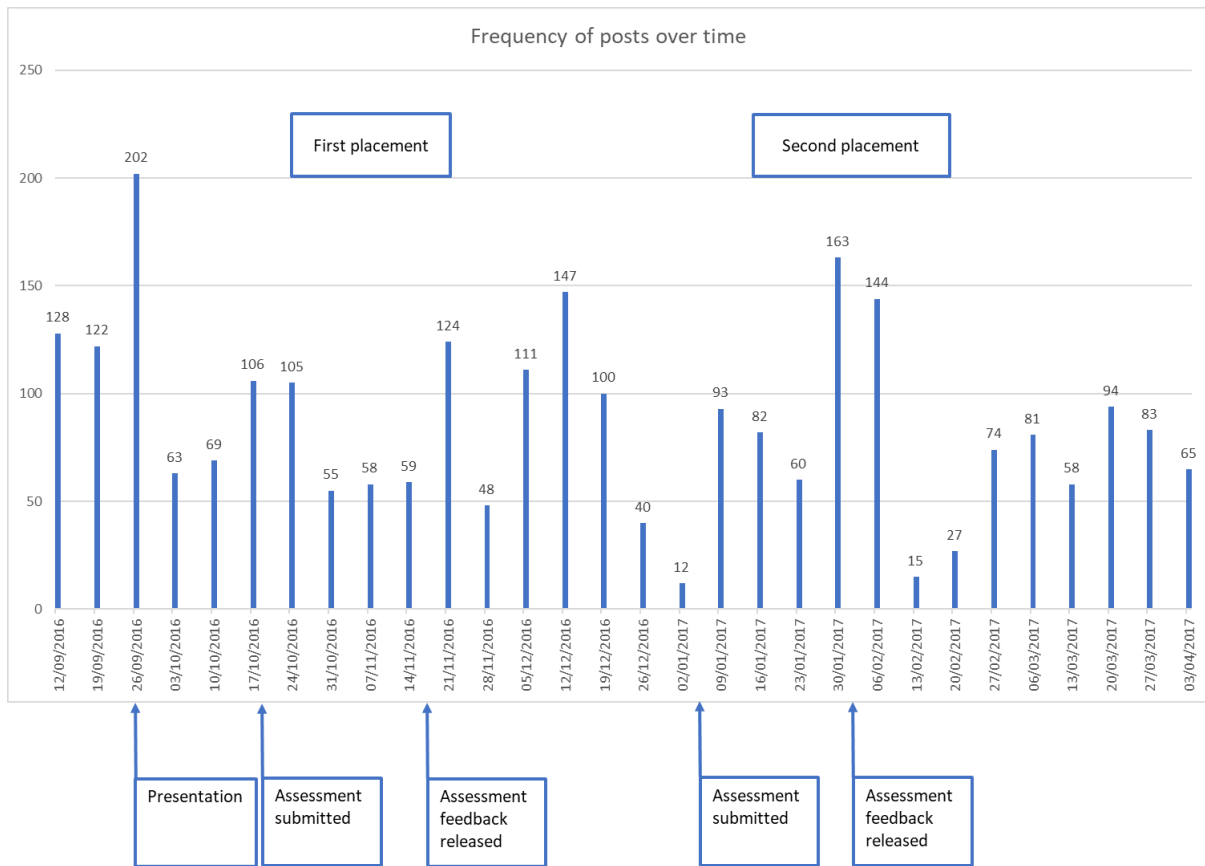


Figure 1. The frequency of SNS posts during the research period.

Having coded the data using the codes presented in table 1 the number of times each code appeared was totalled. This raw figure was converted into a code density by dividing the number of appearances by the number of words in all the data. (The resulting figure was multiplied by 10000 to produce values that are easier to work with.) This measure provides insight into how densely the different contexts and topics were present within the SNS data. A summary of the context codes is presented in figure 2. This shows that the placements and assignments are the two most dense codes with social, details and tasks having similar densities.

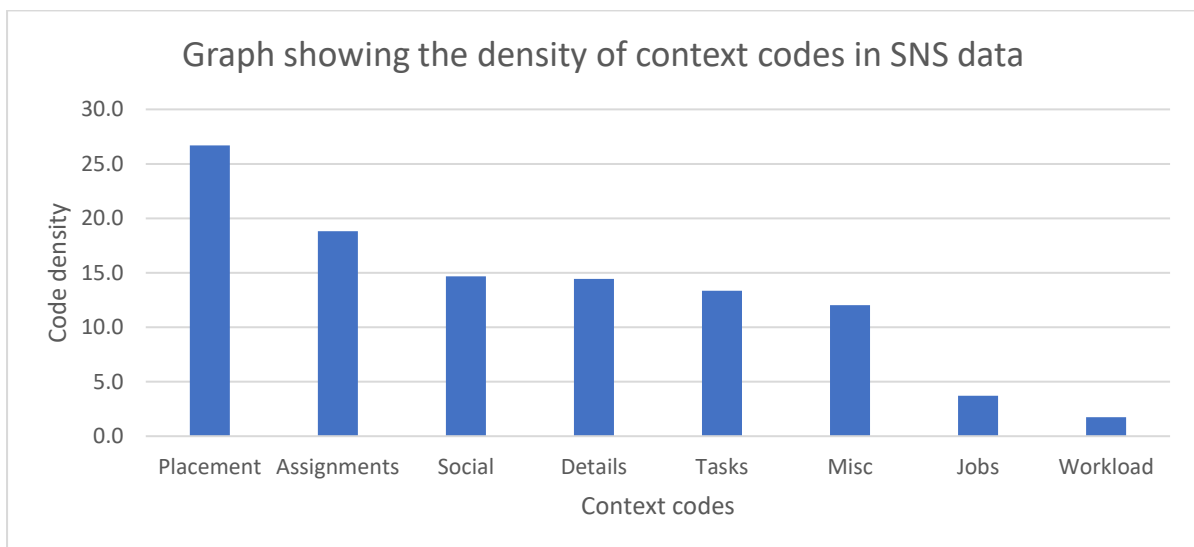


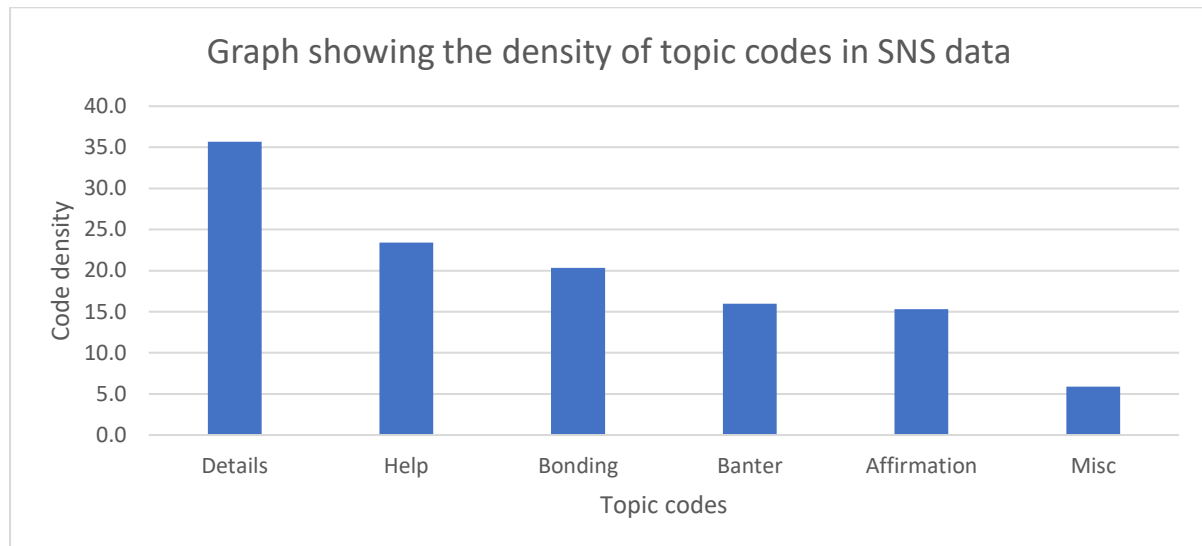
Figure 2. The density of context codes within the SNS data.



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In the same way, figure 3 presents the density of topic codes and it shows that the densest code relates to getting or sharing details about course related issues. The code 'help', which relates to students providing support to one another beyond the provision of straightforward details, is the next most dense and is denser than either of bonding or banter which have close links to the context code 'social'.

The combination of the three forms of analysis consequently gives insight into questions relating when the students are interacting via SNS, why they are interacting via SNS and what they are interacting about.



**Figure 3.** The density of topic codes within the SNS data.

### Discussion

The analysis of the data sources from the perspective of when students make use of SNS, why they use SNS and what they use it for, provides an opportunity to offer answers to the research sub-questions and consequently the overarching research question. The pattern of usage over the research period shows how different events taking place during the programme influence the intensity of SNS use.

Starting with the first research sub-question which relates to students' use of SNS to support learning, there is little evidence that it plays a significant role in formal learning (Deng and Tavares, 2015). The density of context codes (figure 2) indicates that students engage in interactions via SNS relating to placements and assignments more than other contexts. The award of PGCE which these students are studying for is based on academic assignments along with assessed teaching placements and it is perhaps unsurprising that they interact via SNS in relation to these. However, the summary of the density of topic codes (figure 3) shows that the topics of discussion are most frequently categorised as details or help which are not aligned with formal learning descriptors (Deng and Tavares, 2015). It would be more appropriate to describe these topics as around-task interactions (De Laat and Haythornthwaite, 2007:189) which support formal learning or informal learning (Greenhow and Lewin, 2016). This suggests that students are making use of SNS interactions to play a role in their learning, but this is via supporting their formal learning, e.g. by offering one another help and details to smooth out their learning journey through the course. This can be seen taking place in figure 1 (26/09/2016) in the week before the students have a presentation linked to an assessment activity where there is a notable 'spike' in the frequency of usage. It is easy to surmise that this is driven by anxiety related to the first assessment activity in front of a new group of peers, but it would require analysis of interview data with the participants to confirm this which is beyond the scope of this article.

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This is an example of how the students are using SNS as a third-space (Aaen and Dalsgaard, 2016) where SNS is being used for purposes which are not purely social but are related to their learning. Drawing this together, the frequency of SNS use in the period prior to the presentation illustrates the way that the students were making use of SNS to support their academic learning by sharing details and offering help in relation to an assessment activity as a form of third-space usage. In a similar way, figure 1, shows an increase in usage in relation to other aspects of academic activity such as the return of feedback (figure 1 21/11/2016 and 30/01/2017).

A second example of the way that students appear to making use of SNS to support their around-task, informal learning can be seen in the build up to the students' first placement (Figure 1 17/10/2016 and 24/10/2016) where there is a two week period of SNS usage which is higher than the period before or after it. This provides evidence that students are making use of interactions via SNS to support their professional learning while on placement. In a similar way there is a rise in use prior to the start of the second placement (Figure 1 09/01/2016 and 16/01/2016) which further supports this finding.

The second research sub-question considers social cohesion and how students make use of SNS interactions to build and maintain this. This is of particular interest to these students as they are members of discrete cohorts but within these, they spend significant periods of the course isolated from one another when in placement schools. The role of social cohesion is discussed by Deng and Tavares (2015) who propose that it is an element of learning which sits alongside cognitive activity. Thus, while it is not directly related to learning outcomes, it plays a significant role in student progress and outcomes. When looking at the context codes in figure 2, it can be seen that after placement and assignments, social is the next most dense code. In other words, when considering why students are interacting via SNS, reasons relating to social cohesion are significant for the students. When considering what students are interacting about, figure 3 shows that topic codes bonding, banter and affirmation appear after details and help as the most dense. Bonding, banter and affirmation have strong connotations with social cohesion. In relation to when students are making use of SNS to support social cohesion (figure 1) the high levels of SNS use in the first two weeks of the course (12/09/2016 and 19/09/2016) would be indicative of this when the cohorts could be expected to engage in bonding interactions. A comparable example might be expected in the period prior to the Christmas break (figure 1 12/12/2016) where bonding and banter might characterise the interactions of a group of students heading towards their first break after an intense period of study. A final example could be present in the high level of usage seen in figure 1 in weeks 30/01/2017 and 06/02/2017 surrounding the return of assignment feedback where it would be possible to imagine students engaging in affirmation as they share and discuss their outcomes with their peers.

One thing that appears to arise from the consideration of both research questions together is way that the participants showed themselves to be discerning and selective users of SNS. Because school placements are very demanding and take up a lot of student time, it would be a logical response for students to cease any activity which they deemed as a distraction in order to focus on the most pressing priority of successfully completing their school placement. Additionally, placements are individual activities and interactions about one student's placement, class, mentor etc. are not likely to be applicable in a different student's setting. This can be seen in the low levels of usage during the first placement (figure 1 31/10/2016 to 14/11/2016) and to some extent, this pattern is repeated during the period of the second placement (figure 1 16/01/2017 to 20/02/2017). The exception during the second placement surrounds the weeks following the return of assignment feedback (figure 1 30/01/2017 and 06/02/2017). This suggests that students are making sophisticated choices about when to, and when not to, use SNS. When on placements, which place high demands on their time, they will tend to interact less on SNS however, this tendency will be trumped if there are course activities which give a reason for them to interact.

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The coding scheme used for the content of the SNS interactions, along with the temporal data, has been useful in identifying general trends in the data about when, why and what students are discussing. However, a limitation of this approach is that it has not been possible to make links between the context and topics of interactions and the frequency of SNS use. In other words, it has not been possible clearly identify that peaks in use prior to assessments are characterised by interactions that would be context coded as assignment, or that peaks in use prior to Christmas would be characterised by topic coded as banter. Further analysis of the data along these lines is a possibility. Such an analysis would be interesting as it might provide insight into the significance of why and what students are discussing. This would be of particular interest in relation to context and topic codes that were not widely applied to interactions as these may be infrequently used but might be of great significance.

### Conclusion

The students in this study have been found to use SNS to build an online community that plays a role in aspects of their informal learning as well as the social side of learning. The students are studying on a course that has academic and professional elements and interactions via SNS appear to play a significant role in both of these elements. Assignments and placements are the two most dense of the context codes applied to the students' SNS content reflecting the two elements of their course. Whilst this is the case, it should be noted that when engaging in interactions via SNS in relation to these two contexts, it is more likely than not that they will not be discussing formal aspects of their learning. In this respect, SNS interactions can be seen to play a supportive role in the students' progression through the course rather than playing an integral part of their learning.

It seems evident that the students are selective and discerning users of SNS and will make the choice to interact when it has value, and that they will decline to interact if there is limited value in interacting and there are other demands on their time. This is contrary to other studies that have suggested that students' use of SNS is a distraction from their academic progress. This is of particular interest when considering the role that SNS interactions play in social bonding as the participants demonstrated that they reduce use of SNS during periods of high workload.

The role that interactions via SNS play in social cohesion is multifaceted and covers the way that moral support and encouragement is offered through affirmation, humour through the use of banter and joking, and by interactions that build social bonds such as getting to know one another better through bonding. This social cohesion appears to be allied to the role that SNS plays in informal learning. In contrast to this, there is limited evidence that students were interacting via SNS to support formal aspects of their learning. Given that this study relates to student-student interactions within a Networked Learning framework, there is scope for further research to identify which other forms of interaction play a role in formal learning.

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