

## **WEB 2.0: THE USE OF SOCIAL MEDIA IN POST-QUALIFICATION TRAINING IN EMERGENCY MEDICINE**

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### **Abstract**

This study assessed the use and access of social media by junior doctors taking part in a blended training programme in Emergency Medicine. Results showed that a majority of the subjects used a laptop (51%) with a home Internet connection (46%) to access web resources. Subjects' engagement with the sites was varied, with those who did not use Twitter socially reluctant to engage with it. Though usage was higher, time constraints and the asynchronous nature of the interaction prevented rapid responses to student queries using Facebook. Students indicated a preference for quick access resources such as Wikipedia for information sources.

### **Background**

Social media and online communities have become increasingly popular over the last decade with Mori (2007) indicating that up to 95% of British undergraduate students are regularly using social networking sites (SNS) such as Twitter and Facebook. The main use of Twitter is as a micro-blogging site which allows users to share short (140 character) messages (Tweets) with followers. Facebook is a much more complex site which allows users to write on an area of a personal webpage called a wall where they can post links, comments, photos and videos. Users can control access to their profile and wall by changing their privacy settings. Facebook has a number of other social functions including instant messaging/online chat function, functions for user groups and pages to discuss interests and communicate in a micro-network.

There have been numerous studies into the use of social networking sites in higher education (Junco et al., 2010; Madge et al., 2009; Reuben, 2008) which suggest that social networking sites can enhance learning through collaborative working. However it has also been suggested that there are potential problems with privacy issues and the concept of attention economy. Lanham (2006) suggests that as accessible information increases, attention decreases. An aspect

that has had little research is how students actually interact with social media in an educational setting and its effectiveness for use in postgraduate education.

After gaining a degree in medicine at University junior doctors are required to further their medical knowledge through general and specialist clinical training (Barlow et al., 2010). This involves rotation through different departments with training including traditional teaching and shift work in the department itself.

In the last decade increasing demands and responsibilities have been placed on medical educators, leading to a reduction in the time being spent on teaching (Jorge et al., 2006). The impact of the European Working Time Directive, introduced in 2009 has also reduced junior doctors' maximum working hours (Temple, 2010). This has caused concerns amongst NHS managers that junior doctors will not receive satisfactory training (Pickersgill, 2001).

In 2007 a study reported only 30% of Junior Doctors in emergency medicine attended their weekly tutorial, which in turn left the teachers disheartened and less committed (Carley & Mackway-Jones, 2007). Research by the Department of Health has suggested that a possible solution to this would be to incorporate e-learning into training programmes (Davies et al., 2007). E-learning offers flexibility through asynchronous delivery enabling the learner to control content and manage the time and pace that they view and engage with the curriculum content (Patrick et al., 2009).

The Southampton Emergency Medicine project (SEMPEP) aims to change the way Junior Doctors in the Emergency Department engage with their postgraduate medical training by moving away from the traditional lecture delivery towards a more blended approach (Barlow et al., 2010). The blended approach allows for more flexibility without losing face to face contact. This enables a wider choice of resources and modalities (Reynolds, 2010) particularly through the use of Web 2.0 technologies.

This study aimed to examine how junior doctors made use of Internet resources and social media, and if social media could be used as an effective educational tool in their training. It primarily focused on the use of the social networking sites Facebook and Twitter but also considered how the subjects engaged with the Internet for educational purposes, including the use of search engines and information websites such as Wikipedia.

## Method

This study focussed on two sequential groups of junior doctors participating in the Southampton Emergency Medicine education project (SEMPEP). The subjects were taught in a traditional lecture setting once a week but the course also made use of online material such as pod casts and video lectures. A Facebook group and

Twitter feed were created by the teaching team in addition to the learning materials as extra ‘non-compulsory’ learning resources.

The Facebook and Twitter groups were created and the subjects and other consultants were informally invited to join the group. The Facebook group was set to be only accessible to the cohort while the Twitter page was set to public access.

### Data Analysis

Twitter and Facebook were not directly compared for this study, as the accounts were setup at different times and therefore the subjects were exposed to these for different durations. The aim of this study was to assess if either platform could be used effectively to enhance learning. Tweets were analysed for a period of 1 year (from December 2010–December 2011) while engagement with the Facebook group was analysed for 18 months from the creation of the group in August 2009.

The use of Twitter was assessed by analysing the Twitter timeline. The information that can be found on a timeline include Tweets (a message posted by the user); Retweets (a user can repost a Tweet by the users they are following so their followers can see it); Mentions (including a user in a post by linking to the user); and Replies (a reply to a specific Tweet by that user) (O’Reilly, 2009). The data regarding the Tweets, ReTweets, Mentions, and Replies was collected. These were then subdivided into four categories as shown in Table 1.

Table 1: Analysis of Twitter Feed

	Tweets by SEMEP	ReTweets by SEMEP	ReTweets of SEMEP	Mentions of SEMEP	SEMEP mentions others	Replies to SEMEP Tweets
<b>Social</b>	2	1	0	0	3	1
<b>SEMEP Site Info</b>	10	1	0	0	2	0
<b>General Info</b>	40	0	1	0	3	2
<b>Links to Resources</b>	55	2	15	3	2	3

Posts on the Facebook group wall were analysed and divided into posts from the teaching team and posts from the Junior Doctors. These were then categorised and subdivided into the following categories shown in Table 2.

Table 2: Analysis of Facebook Group

	General Information	Links to resources	Social Posts	Discussion topics	Questions including photos	Replies to questions	Replies to links	Likes
Posts by teaching team	3	14	0	3	4	2	0	0
Posts by junior doctors	0	2	2	0	0	6	1	5

A 21-point questionnaire was used to establish the subjects awareness of the SEMEP Twitter and the Facebook group, their view on the use of social networking for education and their interaction with the two platforms. Questionnaire data was anonymised with the only identification questions on the form being gender and age group. The majority of questions used a 5-point Likert scale (Trochim, 2006).

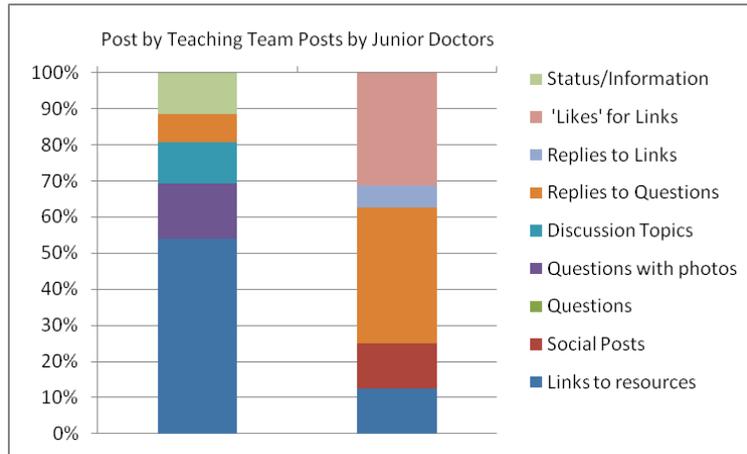
## Results

Twenty-eight subjects, split into two teaching groups, completed the questionnaire. The majority of the first cohort fell into the 26–32 year age group and the majority of the second cohort was 33–40. There was an equal divide in gender across the cohort. At the time of analysis of the Twitter page had 93 followers and the Facebook group had 42 friends.

### Use of Social Media

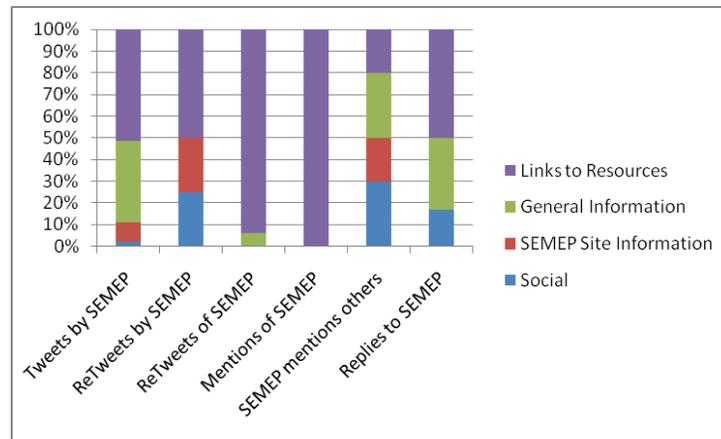
Figure 1 shows that a large proportion of the posts on the Facebook group wall (54%) were links to resources posted by the teaching team. Only 6% of these posts received replies from the junior doctors but 31% of these links were tagged “Liked.” This suggests that the subjects were engaging with these additional resources. It also gave them the opportunity to give feedback as to if the resources were useful. However, it does not show how they interacted with these resources, or how many of the subjects viewed each resource.

Figure 1: SEMEP Facebook Group



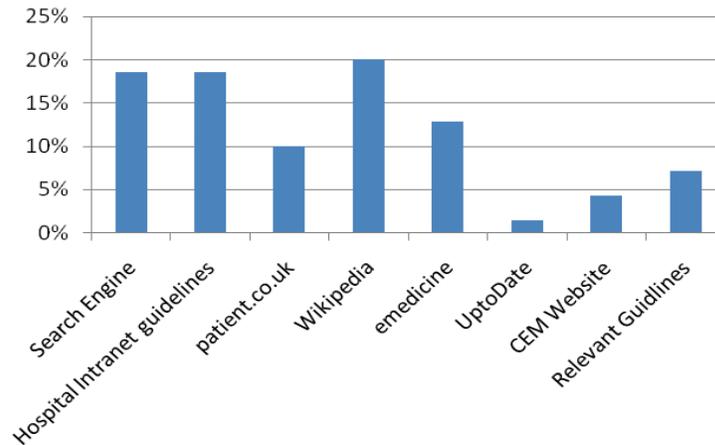
Of the posts on the Facebook group wall 15% were case-based questions including photos such as X-rays. The results indicate a high level of engagement from the junior doctors with 38% of their posts being replies to these questions. However the feedback from the teaching team for these replies was only 8%.

Figure 2: SEMEP Twitter Use



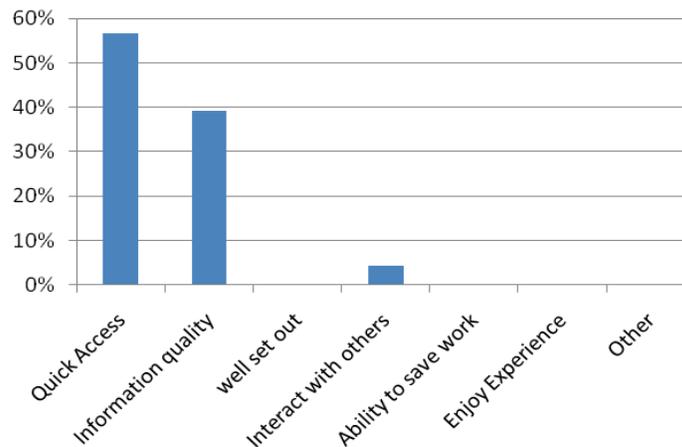
The majority of the Twitter feed focussed around links to resources: 51% of the Tweets by the SEMEP Twitter and 94% of the retweets by followers were links to resources; 27% of the links to resources posted by SEMEP were retweeted by SEMEP followers. This indicates that these particular links were found sufficiently useful by followers of SEMEP that they deemed it necessary to share them with their own followers.

Figure 3: Preferred Web-based Information Resources



Junior doctors were also asked to state what Internet tools they were most likely to use for answering clinical questions. Figure 3 shows that 20% stated they were most likely to use Wikipedia, with 18% stating they would use a search engine or the hospital intranet guidelines. Subjects were also asked what they consider the most important aspect of a resource (Figure 4). 58% of the subjects stated that they prioritise a resource being able to be accessed quickly over the quality of the information.

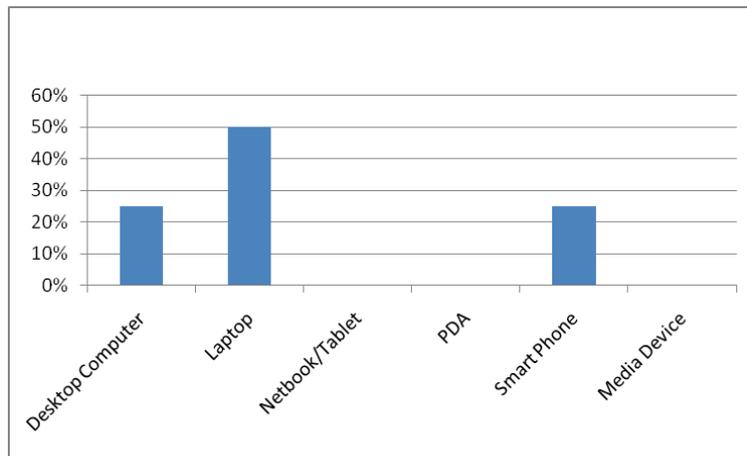
Figure 4: Most Important Feature for an Internet Resource



### Access Method

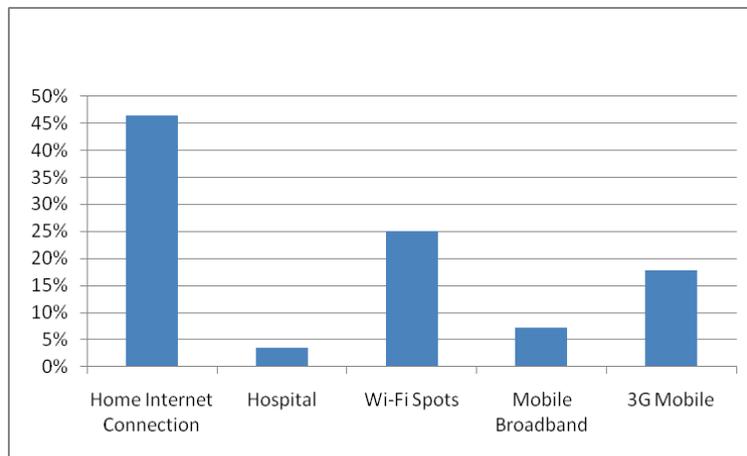
Figures 5 and 6 show that the majority of the subjects accessed online material using Laptops (50%) with a home Internet connection (46%).

Figure 5: Method for Accessing Resources



Smart phones with a mobile or 3G connection were used by 25%, a higher percentage than the subjects from the previous SEMEP study, where only 4% were found to use a smart phone to access resources (Barlow et al., 2010).

Figure 6: Most Commonly used Internet Connection

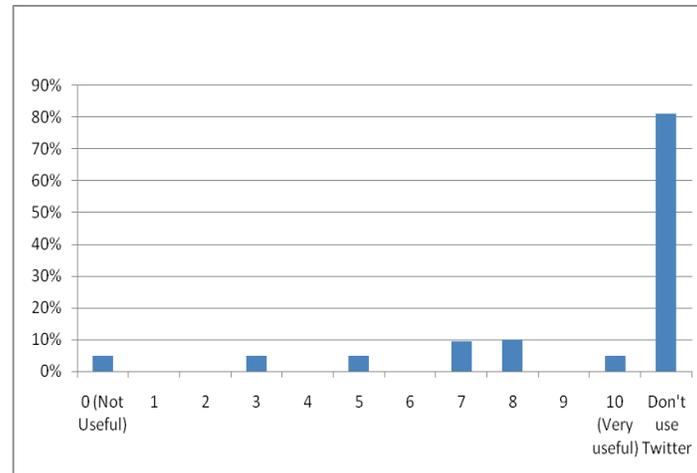


### Perception of Learning

The majority of subjects did not normally make use of Twitter (Figure 7) and were therefore reluctant to voluntarily engage in it for learning purposes. Subjects who use Twitter socially, however, reported positively on its use. It has been reported that adult learners especially want their learning to be based on their previous experience (Hartley, 2000) and that they may be reluctant to engage,

with unfamiliar technologies (Bayne, 2008). This suggests there are limitations to the application of social media not already in general use by the junior doctors.

Figure 7: Usefulness of the SEMEP Twitter Feed



## Discussion

Several advocates of educational technology suggest that social media should be an extremely useful tool in education (Visagie & Villiers, 2010). Whilst the results shown here indicate a definite interaction by a number of the junior doctors with social media for an educational purpose, these tools are competing within their “attention economy” (Davenport & Beck, 2001) for both their social and professional attention. Subjects were far more likely to consult a search engine or online encyclopaedia when they encountered a query than to post a question on Facebook or Twitter. This provided them with an instant (synchronous) answer, even if it had to be treated with some caution for accuracy. The use of tools such as Twitter for directing students to specific resources is recognised, but they cannot be considered to be truly effective because of the asynchronous nature of their operation.

Facebook enabled a more self contained learning environment, with the possibility for posting questions, perhaps containing photos, for the students to answer, discussion boards and links to resources. However, possibly due to the time pressures facing junior doctors whilst they train, it was difficult for those who did choose to answer the questions to receive effective feedback from seniors and peers, these conversations sometimes stretching over several months. This suggests that to use Facebook effectively as a learning environment the teaching team need to ensure timely responses to queries.

The concept of attention economy also has an impact on the utility of social media sites. While postgraduates appeared to be relatively unlikely to be distracted by

non-educational information on the site, it could be suggested that a junior doctor would have only a small amount of time to check and reply to these platforms. A site such as Twitter is specifically designed for use on mobile platforms and is almost continually updating, whereas the majority of junior doctors are using fixed position Internet access as and when they get time. Consequently, it is likely that they will miss important information unless they consciously scroll back through the lists of posts on a timeline.

The time requirements of checking multiple systems can reduce their effectiveness. This is where more traditional learning management systems are advantageous as they contain a number of learning tools in one place. Whilst it is possible to check these sites on mobile devices the results suggested the majority of the subjects used laptops with home Internet connections.

The results indicate that the main priority for the junior doctors is quick access to information over the guaranteed reliability of that information. This is understandable in a busy environment such as an emergency department. Previous studies have also indicated this to be a common consideration by doctors in training, even going as far as stating that for an online resource to be of any use at all it must be immediately and easily accessible (Ismach, 2004). The subjects' use of Wikipedia is likely to be due to its user friendly interface enabling fast searches through many topics with hyperlinked words featured in the articles. The reliability of information placed on sites such as Wikipedia has been debated frequently over the past few years (Ayres et al., 2008; Giles, 2005). However, whilst the subjects did state that overall they would prefer to discuss clinical situations with a senior, this is often not possible, and hence there has been an increase in the use of search engines and sites such as Wikipedia (Tang, 2006).

## Conclusion

This study aimed to examine the use and effectiveness of using Web 2.0 within post-graduate emergency medicine education. The study demonstrated that micro-blogging sites can be an effective mediating tool for information provision and direction, especially with regards to links to resources. However educationally this could potentially be better achieved with a learning management system. For Twitter to work as an effective educational tool there would need to be a significant increase in uptake of the platform.

Research suggests that globally only 41% of Twitter users have tweeted since opening their account and only 10% have tweeted more than ten times (LaComunidad, 2010). A study by RJ Metrics in January 2010 showed a decline in new users of Twitter from a peak of nearly 8,000,000 a month in July 2009 to around 6,000,000 a month by December of the same year (Guardian, 2010). Facebook was far more widely used by the junior doctors in this study, and could be used for posting questions and useful information. However, due to its

voluntary nature of engagement combined with time pressures faced by staff it can be problematic as a standalone learning tool. Facebook was demonstrated to be a functional tool for group discussions about topics but for it to benefit an entire teaching group it would have to be compulsory for all students to check the group frequently.

Despite the popularity of social networking, its use for education still needs further research. When junior doctors require additional information their first resource is the Internet, but having a face to face discussion with peers or a senior is preferable.

This study has shown that there is a definite requirement for quick access to reliable information by junior doctors training in emergency medicine. Although there were advantages to the social media sites as additional learning sources, results show it would be very difficult for these sites to be used as standalone learning tools.

### **Further Work**

The study suggests that social networking has limited educational benefit as a resource for a postgraduate blended learning programme. The data does suggest however, that it may be useful as an additional tool for particularly motivated students. An area that could be considered for analysis is the use of the Facebook page application called Facebook Insights. This allows the user to map the demographic, gender and use of the page they create and would give a quick and accessible view of how the page was being used.

Twitter is useful for micro-blogging links to resources. Further study into the student perception of this could establish if this would be a positive attribute to a blended learning programme. The use of motivational posts is also an interesting aspect that had not previously been considered and a further qualitative study into whether this has an effect on student performance would establish its importance. There seemed to be little social distraction for the subjects from either social networking sites, this is possibly due to the fact that the subjects were undertaking professional qualifications where motivation to succeed tends to be high. A comparison with undergraduate students would reveal if this is more of a problem when using social networking in higher education.

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