Using Facebook for Medical Education: Will Students Respond?

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SUMMARY

There is little information about the willingness of medical students to participate in Facebook for education. I analyzed my interactions with students for the past 14 months to estimate the quantity of student interaction. A Facebook Group was created. Students friend requests were accepted, but "friending" was never solicited. Questions were created around a clinical situation and posted. Forty questions were posted. 5/40 questions were about physics/chemistry. 24 questions focused on basic medical sciences. 11 questions were primarily about clinical medicine. In fourteen months, 533/810 (66%) college students joined the Group. In all, 163/533 students (30%) responded at least once. Half of all responses were comments; the rest were clicks on the "like" button. The average number of responses was 9.5 unique students/question. If participation is voluntary, and targeted students are large in number, one can expect about 66% of students to become members of a site, and about 30% of these to interact. For any given question posted on the site, about 2% of members will respond, regardless of the nature of question: clinically oriented or basic.

KEY WORDS:
Social media; Education, medical; Facebook; Behavior; Internet

INTRODUCTION

Students are avid users of social networking sites like Facebook. It is tempting to use Facebook for disseminating medical knowledge, but will students respond? The literature does not provide the answers. A recent review1 showed that there are only about twenty published papers that directly discuss the use of digital media for medical education, and few specifically shared their experience about using Facebook.

As a teacher in a medical college, I have been using Facebook for educational interaction with my students for over a year. Our interaction was unexpectedly vigorous, and I conducted an analysis to try to determine if a. students will join the site, and b. if they will interact.

MATERIAL AND METHODS

The students were undergraduates from the Faculty of Medicine, Universiti Teknologi MARA, Malaysia. On my Facebook account I created a Group called Kampus Notes, accepted requests from the students, and made them members of the Group. I posted questions based on brief clinical scenarios. Questions were often repeated for clarification; there were many more posts than questions. The discussion was often based on the basic sciences such as anatomy and physiology, or even physics and chemistry, focusing on the the science involved in the clinical situations. Question were open-ended or objective type. There was a frequent use of links and pictures.

Friends. Students who wrote to me for friending were accepted, and included as members of the Facebook Group. Applications came by word of mouth; friending was never solicited nor discussed during teaching-learning sessions.

Interactions. Interactions included "Comments" and "Likes". When a student typed something in response to a question, this was counted as a Comment. The other type of response was a click on the Like button. Multiple responses counted as one if they were made by the same individual.

Privacy. I deactivated the "Show in news feed" setting, so that a student's personal posts were never seen on my Facebook wall, while the specific responses still showed up within the Group. Clinical pictures and X-rays shown on the site were authorized by the patients in writing, and were suitably anonymized before uploading.

RESULTS

24 pertaining to basic sciences, five focussing on physics or chemistry. For example, the first post used the setting of cholangitis to ask questions about septicemia. The second post used a case of varicose veins to ask questions relating to clinical examination. A subsequent post used a cecal perforation to discuss fluid physics. Questions were difficult, and probing.The learning outcome intended was an understanding of the basic sciences behind the clinical scenarios. Examples of questions are given in Table 1. These questions are copied verbatim from the site, and illustrate the informal style that was adopted. They also show how the focus was not on factual knowledge as much as on understanding.

Friends. In the initial two months, there was a large spurt in numbers. Subsequently new members joined at the approximate rate of ten per month. In fourteen months, 533 members had joined, from an estimated target pool of 810 students (66%).

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Table I: Sample questions

1. This one explores the Rh factor. This depends on knowledge, not on reasoning so much. It may seem unfair, but you people HAVE been taught this in years one and two. The other aspect of this exercise is not to encourage mismatched transfusions, but to make a point about the physiology of transfusion in the first place.A boy, 8 years old, sustains injury and has a splenic injury. He desperately needs blood for the first time in his life. His blood group is B-. The blood bank only has AB+, A+, B+, O+, AB- available. Which of the following would you choose? Explain why.

A. A+. B. B+. C. O+. D. AB+. E. AB-. F. Avoid any of these at all costs, give only crystalloids and hope for the best

2. Let's look at some basics.
   Question 1: One gram of hydrogen gas has lesser weight than one gram of carbon dioxide gas: T or F? Question 2: One gram of hydrogen gas has the same mass as one gram of carbon dioxide gas: T or F? Question 3: One molecule of hydrogen gas has lesser weight than one molecule of carbon dioxide gas. T or F? Question 4: One molecule of hydrogen gas has the same mass as one molecule of carbon dioxide gas: T or F?

Answers to these questions, and a final comment on the "Avogadro and the mole" story comes tomorrow. Don't underestimate this, ladies and gentlemen. I'm raising this because we keep using mole, millimole, equivalent, milliequivalent in our day to day medical life. If you people were performing in the London Olympics, you wouldn't need to understand moles. But you are doctors, or nearly-doctors. Doctors and pest-control specialists MUST understand moles.

Table II: Distribution of posts, and average number of responses

Type of question	Disciplines	Number of questions	Responses per question (range)
Fundamental	Physics, chemistry	5	9.3±5.3 (4-21)
Basic	Anatomy, physiology, pathology, pharmacology, microbiology	24	9.8±6.6 (2-26)
Clinical	Surgery, medicine	11	9.7±12.1 (2-43)

Interactions. The average number of responses per question was 9.5. The frequency of responses to all types of posts was similar (Table 2). 163 members (30%) responded once or more to the questions that were posed. The average number of unique responses was 9.5/question (Table 2). In all cases many students responded more than once. Half of the responses were Comments by students, half were Likes. For some posts, the responses from the students were actually fewer than those made by me. Overall, student:teacher responses varied from a low of 1:3 to a high of 29:7 (average 2:1).

The type of question did not significantly influence the frequency of response.

DISCUSSION

Facebook was not designed for education. Nevertheless, nearly all young persons access it, therefore it has been used to advantage by educators. Medical teachers may wish to use the medium for education, but literature is scanty, [2, 3] and we do not know if students will respond.

In this site, about 66% of students in the college joined the site by word of mouth alone. For any given question, about 2% of all member students responded. One likely main reason for the low response rate is that the target audience is large in number. Personal experience with Facebook shows that when one addresses a student group of 15 or less, response rates approach 100%, albeit with a little encouragement. A second reason for the low response rate is that no pressure was applied to students to respond. The numbers can be as high as 80% if teachers actively encourage joining the site, especially if there is a likelihood of benefit in examinations.[2, 4] Nevertheless, since the target audience was large, there were usually enough responses to make the discussion worthwhile.

About 30% of student members interacted at least once. For comparison, DiVall and Kirwin,[2] who actively encouraged interaction, reported that 26% of students commented, and an additional 24% clicked "Like". Overall, one can expect active interaction with not more than half of all eligible students.

Just before this paper was written, students were asked for their feedback. There were some favorable comments, and a few suggestions. Overall, students were attracted to the concept of the use of Facebook for an interaction with a teacher.

There was never a situation of impropriety. Teachers are concerned that students may leak personal information. It is therefore tempting to restrict the use of social media, but too much safety can be counter-productive.[5] Students should not be denied a potentially valuable medium of communication if they can be taught proper care.

Strengths and limitations of the study

This paper represents a year-long experience with large numbers of questions addressed to a large body of students. It gives a fairly good idea of the way students will react to education over a social medium. There are limitations, however. This paper documents the experience of one teacher in an initial trial of using Facebook as an adjunct to medical education. There was no attempt to plan questions into various categories: clinical, preclinical or basic, therefore the numbers are unequally distributed. It is difficult to say from this experience whether students will achieve any outcomes in examinations or in clinical practice. If one wishes to

determine if the students have, in fact, learned anything from this method of teaching, the methodology will need modifications. The learning outcomes will need to be defined and the questions will need to be set to the students appropriately. A quiz will need to be conducted to determine changes in knowledge. One may even wish to include a control group in the study design.

Using Facebook for education

Should Facebook, or other social media, be used for education? Most universities provide blog facilities for students on their websites. Experience shows that these blog facilities, though technologically sound, are relatively little used. The reason is familiarity: students are familiar with Facebook well before they enter medical school. For this reason it would appear logical to use the power of this medium. The quiz questions tap only a fraction of the power. Facebook allows the teacher to create several groups, and it is possible to keep different student groups separate. Students in a group can hold a discussion almost as if they were in a classroom. They can, and do, share links to videos providing "how-to" information. Teachers can easily post illustrations. Extensive amounts of homework can be achieved over this medium, saving classroom time for newer topics. Teachers will, of course, need to familiarize themselves with the skills of both using the facilities provided by Facebook as well as with the skills of adhering to privacy and ethical concerns.

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