

Use of a Secure Social Media Platform to Facilitate Reflection in a Residency Program

AARON W. BERNARD, MD, MMEL
 NICHOLAS E. KMAN, MD
 ROBERT H. BERNARD, MEd
 DAVID P. WAY, MEd
 SORABH KHANDLWAL, MD
 DIANE L. GORGAS, MD

Abstract

Background Reflective writing is used to promote learning and professional growth in medical education. Sharing reflections with peers and supervisors facilitates feedback that enhances understanding.

Objective We explored the feasibility of using a secure social media platform to share reflections and promote reflective discussions in an emergency medicine residency program.

Methods This was a prospective pilot investigation evaluated with a poststudy opinion survey. Reflective

discussions were also described using basic quantitative and qualitative methods.

Results The 2-month, voluntary, pilot study included 21 faculty and 36 residents. Faculty posted reflections and replies ($n = 146$) more frequently than residents did ($n = 48$). Survey data suggested both groups found the platform engaging and easy to use, valued the security of the platform, and felt the conversations were valuable to their professional development.

Conclusions Secure social media offers a feasible option for sharing reflections and facilitating reflective discussions in medical education.

Editor's Note: The online version of this article contains a table of examples of the 5 themes in the reflection domain.

Introduction

Reflective writing is used to promote learning and professional growth in medical education.¹ The rationale for reflection, evidence supporting reflection, and general tips for teaching reflection have been described in recent reviews.¹⁻³ Sharing reflective writing with peers and supervisors facilitates feedback that enhances understanding. Current mechanisms for sharing reflections include

small group meetings; printed or electronic documents; e-mail discussion threads; or web-based discussion boards and blogs.²

A mechanism for sharing reflective writing that has not been studied much is social networking. Platforms such as Facebook or Twitter facilitate the communication of thoughts and feelings with many people. Social media sites are readily accessible on desktop or laptop computers, smartphones, or tablet devices and are familiar to millennial learners who commonly use social media for communication.⁴

Although social media has great potential to connect learners and teachers, popular platforms, such as Facebook or Twitter, are open to the public and relatively insecure. Holding honest and thoughtful dialogues through those platforms is difficult, particularly for discussions about patient care. Many educators have voiced concerns regarding social media and professionalism.⁵

We explored the feasibility of using a secure social media platform for sharing reflections and promoting reflective discussions in an emergency medicine (EM) residency training program.

Methods

Study Setting and Design

We studied the use of a secure social media platform for reflection in the Ohio State University (OSU) EM residency program between February 2013 and April 2013. The OSU

Aaron W. Bernard, MD, MMEL, at the time of this study, was Assistant Professor of Emergency Medicine, Ohio State University, and is now Associate Professor of Medical Sciences, Quinnipiac University; **Nicholas E. Kman, MD**, is Associate Professor of Emergency Medicine and Emergency Medicine Clerkship Director, Ohio State University; **Robert H. Bernard, MEd**, is Teacher of Social Studies, Glastonbury High School; **David P. Way, MEd**, is Education Specialist, Ohio State University; **Sorabh Khandelwal, MD**, is Professor of Emergency Medicine and Assistant Dean for Clinical Sciences, Ohio State University; and **Diane L. Gorgas, MD**, is Associate Professor of Emergency Medicine and Emergency Medicine Residency Program Director, Ohio State University.

Funding: The authors report no external funding source for this study.

Conflict of interest: The authors declare they have no competing interests.

Corresponding author: Aaron W. Bernard, MD, MMEL, 275 Mt Carmel Avenue, Hamden, CT 06518-1908, 203.859.1482, aaron.bernard@quinnipiac.edu

Received June 17, 2013; revisions received August 27, 2013, and September 27, 2013; accepted October 21, 2013.

DOI: <http://dx.doi.org/10.4300/JGME-D-13-00226.1>

EM residency is a 3-year training program, with 37 residents (16 women, 21 men). There are 34 faculty members (13 women, 21 men) who teach and participate in clinical practice in the program.

At the time of the study, there was no formal or mandatory reflective writing curriculum in the training program. The residency used a Facebook page for general announcements, and supplemented ultrasound education through the use of Twitter.⁴ Engagement with social media was not mandatory for residents or faculty.

Edmodo Information

Edmodo (<http://www.edmodo.com>; Edmodo Inc, San Mateo, CA) is a free, web-based, social media platform marketed for teaching and learning activities. A lead teacher can create a “group” and invite other teachers and students to join the group by sending them a secure pass code. The lead teacher can monitor group membership and is able to remove group participants. The look and feel of the Edmodo platform is similar to Facebook. Users have the ability to post, or reply to, comments. Posted comments can be edited by the lead teacher. Edmodo can be accessed from desktop computers, smartphones, or tablet devices.

Study Protocol

All residents and faculty in the OSU Department of EM were invited to participate in a voluntary, 2-month pilot program. Residents were incentivized with \$8 gift cards. Descriptive information was provided regarding the theory and potential benefits of reflection, in addition to general suggestions as to how to write a high-quality reflective narrative.^{2,6} The pilot was introduced at a monthly resident-faculty meeting.

Faculty and residents who consented to participate were given the pass code to the “EM Reflection Group” on Edmodo. We encouraged residents and faculty to post reflections and/or reply to their colleagues’ comments. No individual was singled out in these reminders and participants were made aware of the voluntary nature of the activity.

We sent a poststudy electronic opinion survey to all participants at the conclusion of the pilot. The survey was drafted by 1 investigator and reviewed and revised by the other investigators. We also sought outsider feedback about the instrument. The survey was administered through a confidential and secure electronic survey service (SurveyMonkey, Palo Alto, CA). The survey asked about the use of Edmodo and other social media, respondents’ attitudes toward reflective writing in general, using Edmodo for reflective writing, and the value of the posts and replies on Edmodo during the study period.

All posts and replies from the Edmodo EM Reflection Group for the 2-month period were downloaded into a text file for data analysis.

TABLE 1 BASIC DESCRIPTIVE ANALYSIS OF THE NUMBER OF POSTS AND REPLIES DURING THE 2-MONTH PILOT

Description	No.
Total posts	54
Posts by attendings	37
Posts by residents	17
Posts by male participants	40
Posts by female participants	14
Total replies	140
Replies by attendings	109
Replies by residents	31
Replies by male participants	111
Replies by female participants	29

The study was approved by the OSU Institutional Review Board. The use of social media for educational purposes is permitted under the OSU social media policy.

Data Analysis

We analyzed postpilot survey data using basic descriptive statistics, making comparisons across roles (faculty versus residents) when possible. The number of posts and replies were counted and broken down by role as well (faculty versus resident). Posts and replies were further categorized by sex (male or female).

We also analyzed posts and replies using basic qualitative methods.⁷ Investigators worked collaboratively using a constant comparison approach to review comments and adjust the analysis as new themes emerged.⁸ After reviewing all comments, the investigators agreed on a final thematic structure. We determined a priori that saturation was not a goal of this investigation and that our qualitative analysis would provide descriptive information with a focus on the potential of the technology to promote reflective writing.

Results

Almost all (36 of 37, 97%) residents consented to participate in the investigation, created an Edmodo account, and joined the EM Reflection Group. One male resident did not participate. Twenty-one of 34 (62%) faculty (7 of 13 women, 54%; 14 of 21 men, 67%) consented to participate, created an Edmodo account, and joined the EM Reflection Group. There were 54 posts and 140 replies during the 2-month study period (TABLE 1).

TABLE 2 DESCRIPTIVE STATISTICS BY ROLE AND RESULTS OF INDEPENDENT *t* TEST COMPARISONS FOR OPINION ITEMS ABOUT EDMODO PILOT EXPERIENCE

Item	Faculty, Mean (SD), n = 19	Residents, Mean (SD), n = 32	Total, Mean (SD), n = 51	<i>t</i>
Reflection is valuable to my professional development	4.32 (0.48)	4.28 (0.63)	4.29 (0.58)	0.21
The ability to communicate with other physicians in a secure manner online is valuable	4.26 (0.45)	4.16 (0.68)	4.20 (0.60)	0.61
Secure social media (like Edmodo) makes sharing personal reflections easier	4.37 (0.60)	4.09 (0.86)	4.20 (0.78)	1.23
Secure social media (like Edmodo) is an engaging platform for reflection	4.21 (0.54)	4.09 (0.82)	4.14 (0.72)	0.56
The reflections posted on Edmodo were valuable to my professional development	4.05 (0.40)	4.13 (0.66)	4.10 (0.57)	−0.43
The Edmodo platform was easy to use	4.05 (0.71)	4.09 (0.82)	4.08 (0.77)	0.18
The reply comments to reflections on Edmodo were valuable to my professional development	4.05 (0.52)	4.03 (0.78)	4.04 (0.69)	0.11

Eighty-nine percent of resident participants (32 of 36) and 90% of faculty (19 of 21) completed the postpilot survey. Desktop or laptop computers were the most commonly used devices to access the software, and approximately half of both groups reported using smartphones to some extent. Only a few participants used tablet devices.

Most faculty (79%, 15 of 19) and residents (72%, 23 of 32) reported using at least 1 social media site (in addition to Edmodo) on a regular basis, and 32% of faculty (6 of 19) and 9% of residents (3 of 32) used more than 1 social media site regularly. Facebook was the most commonly used social media site for both groups.

We asked participants to rate their experience with Edmodo and reflective writing using 7 items with Likert response sets. Mean responses to each of the 7 items did not differ significantly across the 2 groups (TABLE 2).

Qualitative analysis yielded 2 global domains—reflection and nonreflection—with 43 posts (80%) categorized to the reflection and 11 (20%) to the nonreflection domain. The 3 themes of the nonreflection domain were *sharing information for teaching purposes* (literature, electrocardiograms, images), *announcements/notifications*, and *fun commentary*. The reflection domain contained 5 themes: *clinical case management*, *challenges of clinical work*, *expression of emotions*, *teaching and learning*, and *teamwork* (provided as online supplemental material).

Discussion

Efforts to promote reflection in medical education have increased significantly in recent years. Our piloted study

used secure social media as an alternative platform for sharing reflective writing and promoting discussions. Faculty and residents reported that the platform was engaging and that the reflections were valuable to their professional development. This is consistent with experiences from continuing medical education suggesting that social and collaborative learning is central to promoting change in professional practice.⁹

An unexpected and interesting finding of our study was that faculty used the Edmodo platform more frequently than residents did. We suggest a number of potential reasons for this. Participation rates (21 of 34 faculty, 62%; 36 of 37 residents, 97%) may indicate a selection bias for faculty with an interest in reflection, social media, and/or technology. Although the study was not designed to explore differences between individuals, it was clear that some faculty and residents were more active in the discussions than others. Most prior studies have involved medical students with required reflective assignments.¹⁰ The voluntary nature of our investigation and variable use of the platform by individuals may suggest reflection to be more important for some. In this context, the question of mandatory versus voluntary participation in the use of social media for reflection is worth exploring further. Perhaps a minimal requirement of posts and replies is required to both keep the conversation going and to ensure a level of exposure to reflection for all learners. Those who find benefit can then participate beyond that required level.

Another potential explanation for faculty predominance may be resident perceptions of the security of the Edmodo platform. Perhaps residents felt inhibited by

faculty participation or were concerned their reflections would be used against them in some manner. Despite the lower frequency of posts and replies written by residents, survey data were positive and were not significantly different than faculty responses. This suggests some value in simply reading discussions. Future research is needed to look at the composition of reflection groups. Perhaps only select faculty—those viewed as nonthreatening by residents and skilled in facilitating discussions—should be included.

Given the positive survey data, we expect the frequency of postings to improve over time, and suggest a variety of measures for increasing learner participation. First, because only half of study subjects accessed the platform from their smartphone, we might increase participation by getting participants to download the program application (app) for their phone. An incentive, such as a gift card, could be offered to those who do so. A second suggestion is to have faculty provide discussion prompts. Perhaps learners would find it easier to reply to discussion topics than to initiate them.

Our experience with residents suggests that even the appearance of a mandated change will be met with resistance. Accordingly, we intentionally designed the pilot to be open-ended, relatively unstructured, and voluntary.

The pilot data revealed that women were less likely to comment than men, even after accounting for participation rates. That trend requires further research. Should men's comments continue to be overrepresented, efforts to facilitate a balance in participation across both groups would be needed.

Another interesting finding of our investigation was that 25% of posts were not reflective in nature, despite the intent of the pilot study. Faculty and residents found uses for the technology that we did not anticipate, such as sharing educational resources and contributing announcements and nonreflective commentary. Future areas for study include exploring the effect of unanticipated uses of this technology, including uses to promote collaboration or community building.

This pilot study is limited in that it involves 1 residency program at a single institution for a short time, and the outcomes were primarily what Kirkpatrick refers to as level 1 evidence (reaction/participation/satisfaction).¹¹ The survey instrument lacks evidence to support the validity of responses and our interpretation of the results. Research suggests that many physicians inherently desire to reflect and share their experience with peers. Providing a safe and convenient venue for that to occur is important and may prevent perceived lapses of professionalism through the use of traditional social media sites, such as Facebook.¹²

Conclusion

Secure social media offers a feasible option for sharing reflections and facilitating reflective discussions in medical education.

References

- 1 Sandars J. The use of reflection in medical education: AMEE guide no. 44. *Med Teach*. 2009;31(8):685–695.
- 2 Bernard AW, Gorgas D, Greenberger S, Jacques A, Khandelwal S. The use of reflection in emergency medicine education. *Acad Emerg Med*. 2012;19(8):978–982.
- 3 Aronson L. Twelve tips for teaching reflection at all levels of medical education. *Med Teach*. 2011;33(3):200–205.
- 4 Bahner DP, Adkins E, Patel N, Donley C, Nagel R, Kman NE. How we use social media to supplement a novel curriculum in medical education. *Med Teach*. 2012;34(6):439–444.
- 5 Osman A, Wardle A, Caesar R. Online professionalism and Facebook—falling through the generation gap. *Med Teach*. 2012;34(8):e549–e556. doi:10.3109/0142159X.2012.668624.
- 6 Donato AA, George DL. A blueprint for implementing a structured portfolio in an internal medicine residency. *Acad Med*. 2012;87(2):185–191.
- 7 Sullivan GM, Sargeant J. Qualities of qualitative research: part I. *J Grad Med Educ*. 2011;3(4):449–452.
- 8 Walting CJ, Lingard L. Grounded theory in medical education research: AMEE guide no. 70. *Med Teach*. 2012;34(10):850–861.
- 9 Sandars J, Kokotail P, Singh G. The importance of social and collaborative learning for online continuing medical education (OCME): directions for future development and research. *Med Teach*. 2012;34(8):649–652.
- 10 Fischer MA, Haley H, Saarinen CL, Chretien KC. Comparison of blogged and written reflections in two medicine clerkships. *Med Educ*. 2011;45(2):166–175.
- 11 Hamstra SJ. Keynote address: the focus on competencies and individual learner assessment as emerging themes in medical education research. *Acad Emerg Med*. 2012;19(12):1336–1343.
- 12 Foxnews.com. OB-GYN under fire for posting patient information on Facebook. <http://www.foxnews.com/health/2013/02/06/ob-gyn-under-fire-for-posting-patient-info-on-facebook/>. Accessed April 23, 2013.