

Wikis: Using Collaborative Platforms in Graduate Medical Education

Daniel Cabrera, MD

Robert Cooney, MD, MSMedEd, FAAEM, FACEP

The Challenge

The advent of new technologies is changing the face of medical education.¹ These new tools provide a robust platform for knowledge creation, curation, and exchange; however, educators and learners have different approaches to the use of these technologies. A comprehensive understanding of capabilities and limitations, particularly of collaborative content creation, is of fundamental importance.^{2,3}

What Is Known?

Digital medical education has proliferated in the past decade. Advantages include the ability to offer learners flexibility in time and location of their learning, economies of scale, and the personalization of education.⁴ This proliferation coincides with the advent of web 2.0 technologies, such as social networks and collaborative content hubs (eg, wikis). The ease-of-use, availability, flexibility, and free or low-cost software and hosting options make wikis an ideal platform for online education.⁵

The term *wiki* is derived from the Hawaiian word meaning “quick.”⁶ A wiki is best described as an interconnected collection of pages that allow for organized end-user creation, modification, and management of the content (eg, Wikipedia). Access to these pages and the ability to edit them can be controlled by the webpage administrator.⁷ Wiki content is different from blogs in several aspects, most notably in that content is generated and edited by multiple users.^{6,8} Knowledge thus continuously evolves; content changes by end-users allow rapid improvements that are necessary to keep the content correct and up-to-date. All members of the wiki group have privileges to the material, but usually an administrator maintains oversight. Content changes can occur rapidly and from many authors; therefore, wikis have the ability to track modifications and authorship, with the capability to return to previous versions of a page (known as versioning). This tracking feature supports a degree of personal and group accountability.

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Editor's Note: The online version of this article contains a list of websites relating to wiki platforms, medical knowledge, and medical education.

Rip Out Action Items

Medical education professionals should:

1. Identify educational systems that may benefit from collaborative creation.
2. Become familiar with wiki content, and visit Wikipedia and WikiEM.
3. Create a wiki site using an open-access platform.
4. Define the scope and rules of your wiki project by using the STOLEN principle.
5. Make first steps toward a culture of creation, collaboration, engagement, and responsibility about content and learning experience.

Why Use a Wiki?

Wikis are particularly helpful for the creation and management of asynchronous and multiauthor knowledge (eg, course content, project management, journal clubs,⁹ and other dynamic documents). As an example, see the Emergency Medicine Milestones Wiki.¹⁰ Two studies from Rasmussen et al⁸ and Wheeler et al¹¹ have identified the core aspects of a wiki that appear the most beneficial for medical education:

- **Construction of knowledge:** Teachers and learners can create a partnership for the creation and curation of knowledge.
- **Collaborative learning:** Learners and instructors interact in a small group fashioned toward a common learning goal.
- **Promote interaction:** Current learners engage in a personal but socially supported style of learning. Wikis promote interaction and provide an architecture for participation.

How You Can Start TODAY

1. **Investigate currently existing medical wikis:** Wikis are utilized in medical education to create online textbooks or repositories of on-demand content. Good examples include www.wikem.org and www.wikijournalclub.org.
2. **Contribute to an existing medical or medical education wiki:** Medical wikis are often seeking qualified contributors. Using the frameworks provided by existing wikis allows learners and educators to experience the media with minimal risk. In medical education, consider Medical Education

Home, which is an international wiki for clinician educators.

3. **Develop the framework for your own educational wiki using the STOLEN¹² principle:** Identity a Specific objective, define Times and stages, make clear that the content is collaborative Own, Localize (let people know) what are the objectives, create Engagement rules, and make a clear Navigation plan.

What You Can Do LONG TERM

1. Identify instructional systems, such as courses that may benefit from collaboration and collaborative knowledge creation.⁸
2. Recruit a team to develop a clear social identity, sense of ownership, and culture of collaboration of the content.
3. Migrate as much of classical didactic content as possible to a wiki platform to increase relevance and usability of the material.
4. Create a grading and evaluative strategy to assess engagement and the quality of the learner's content creation.²

Resources

1. Cheston CC, Flickinger TE, Chisolm MS. Social media use in medical education: a systematic review. *Acad Med*. 2013;88(6):893–901.
2. Plourde M. Wikis in higher education. 2008. http://www.udel.edu/sakai/training/printable/wiki/Wikis_in_Higher_Education_UD.pdf. Accessed October 15, 2015.
3. Elgort I. Using wikis as a learning tool in higher education. In ICT: providing choices for learners and learning. 2007. <http://www.ascilite.org/conferences/singapore07>. Accessed October 16, 2015.

4. Cook DA, Levinson AJ, Garside S, Dupras DM, Erwin PJ, Montori VM. Instructional design variations in internet-based learning for health professions education: a systematic review and meta-analysis. *Acad Med*. 2010;85(5):909–922.
5. Boulos MN, Maramba I, Wheeler S. Wikis, blogs and podcasts: a new generation of Web-based tools for virtual collaborative clinical practice and education. *BMC Med Educ*. 2006;6:41.
6. Wikipedia, the Free Encyclopedia. Wiki. <https://en.wikipedia.org/wiki/Wiki>. Accessed October 16, 2015.
7. Sanders J. Twelve tips for using blogs and wikis in medical education. *Med Teach*. 2006;28(8):680–682.
8. Rasmussen A, Lewis M, White J. The application of wiki technology in medical education. *Med Teach*. 2013;35(2):109–114.
9. Chretien KC, Yarris LM, Lin M. Technology in graduate medical education: shifting the paradigm and advancing the field. *J Grad Med Educ*. 2014;6(2):195–196.
10. EM Milestones Wiki. <http://emmilestones.pbworks.com/w/page/55648740/EM%20Milestones%20Wiki>. Accessed October 16, 2015.
11. Wheeler S, Yeomans P, Wheeler D. The good, the bad and the wiki: evaluating student-generated content for collaborative learning. *Br J Educ Technol*. 2008;39(6):987–995.
12. Foord D. The STOLEN principle for using wikis educationally. 2007. <http://www.a6training.co.uk/resources/STOLENticksheet.doc>. Accessed October 16, 2015.



Daniel Cabrera, MD, is Assistant Professor, Emergency Medicine, Mayo Clinic, Rochester; and **Robert Cooney, MD, MSMedEd, FAAEM, FACEP**, is Associate Program Director, Emergency Medicine, Geisinger Medical Center.

Corresponding author: Robert Cooney, MD, MSMedEd, FAAEM, FACEP, Geisinger Medical Center, 100 North Academy Drive, Danville, PA 17822-2005, rcooney@geisinger.edu