

The Electronic Scholar: Enhancing Research Productivity with Technology

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Scholarship is a key factor in advancing medical educators' respective fields, achieving institutional missions and in advancing professional academic careers. Therefore, the topic of this book is an important one for medical educators, many of whom feel increasing pressure to produce and disseminate scholarly products.

This book's goal is to help transform researchers who simply use technology into electronic scholars. To achieve this goal the book appears to serve two overarching functions. First, it offers a background, with accompanying frameworks for adopting and employing electronic tools to effectively conduct research. Second, it presents locations and annotations of over 750 web-sites for use by educational researchers. We will organize our review by focusing on the book's performance of these two functions.

Background and frameworks are primarily contained in Chapters 1 and 8, and these are helpful in organizing and explaining the book's content. The framework that is most instrumental to the book is "Edyburn's Taxonomy of Technology-Enhanced Research Productivity" (pp. 11-12). In this taxonomy six categories of research tasks are presented (e.g., professional development, designing the study, conducting the study). A total of 28 research tasks are contained within these categories and each task includes one or more tactics to aid its completion. For example, under "designing the study" is task #4, "conducting an extensive review of the literature." Under this task are four tactics, including 4.1, "identifying appropriate databases to search" (p. 10).

Chapter 8 returns to items of background to discuss stages of technology integration as well as individual and collective explanations for the rate of technology diffusion. We thought the discussion of integration stages was very strong and could have

been presented early on to help solidify the book's foundation.

We would have liked the origins of the 28 task-taxonomy to be more fully explained. For example, medical educators may be familiar with Bland and colleagues' 1990 text that describes 24 essential skills for academic medicine faculty and includes eight research sub-areas.¹ It would have been helpful to see a discussion of scholarship on researcher tasks and requisite skills, as Edyburn's taxonomy appears to be an important extension of work in this area.

A related concern involved the discussion on electronic scholars. We would have liked more attention to the aims of scholars, so that the inventory of tasks – and the impressive list of potential e-tools (Chapters 2 through 7) – would have been more firmly grounded. For example, the book might have referenced and discussed work by Boyer on *Scholarship Reconsidered*,² showing, for example, how scholarship on teaching might be stimulated by web-based resources.

In our opinion, a helpful addition for strengthening a section on electronic scholars would be case examples that illustrate the application of Edyburn's taxonomy. These cases might highlight the e-tools important in various career situations for clarifying faculty passions, building scholarly portfolios, and remaining vital contributors to their fields.

The second of the book's functions is to serve much like a travel guide, offering brief authorial site descriptions that provide "clear signposts to places you might want to visit" (p.v). Over 750 web addresses and annotations occupy about 80% of the book's pages.

We believe that the quality of many of these sites was very good, and the author annotations were of considerable help in determining their usefulness. For example, in Chapter 2 on professional development, a site we liked is titled "The Knowledge Base: An Online Research Methods Textbook" (visit <http://trochim.human.cornell.edu/kb/index.htm>) by Professor William M.K. Trochim, Cornell University. This web-based textbook covers topics typical for an introductory undergraduate or graduate course in social research methods. Visitors to this site can learn the research process including formulating research questions; sampling (probability and nonprobability); measurement (surveys, scaling, qualitative, unobtrusive); research design (experimental and quasi-experimental); data analysis, and writing the research paper. Another site we found very useful is in Chapter 6, Reporting the Results, titled Presenter's University (visit <http://www.presentersuniversity.com>). This site provides a plethora of suggestions to ensure successful research reporting, as well as a variety of presentation templates available for downloading.

Medical educators might have concerns about the value of some sites. First, while there are good references to sources of web-based publications and electronic libraries, no special attention is paid to health or medical education sites. Second, Dr. Edyburn assures readers that the web-site addresses he presents were accurate at press time. But because web sites are constantly changing and vary widely in quality, we were concerned about the durability and quality of the sites. An update web-page location is provided, but we had trouble accessing the update page. One personal contact with the author provided the accurate location and helpful, additional advice (the update is housed at <http://www.uwm.edu/~edyburn/update.html>).

We would have liked a more clear description of how the author decided to include the sites that are provided. More information might have indicated if included sites were based on systematic research, expert recommendation, or the author's experience.

In summary, while we had notable concerns, we feel that this book makes an important contribution to the synthesis of e-sources that can advance educational scholarship. The book achieves his main purpose, to help educators create an electronic toolbox. We also believe that this book could serve as an effective supplement for some health care research courses. Instructor attention would be needed to customize the tasks, tactics and sites for specific courses and students.

¹ Bland, CJ, Schmitz, CC, Stritter FT, Henry, RC, & Aluise, JJ (1990). *Successful Faculty in Academic Medicine*. New York: Springer-Verlag.

² Boyer, EL. (1990). *Scholarship Reconsidered: Priorities of the Professoriate*. Princeton, NJ: Princeton University Press.

Reply from Dr. Edyburn,

I'd like to begin by thanking Editor David Solomon, Jeff Morzinski and Virginia Rediske for the opportunity to share my work with the readers of Medical Education Online. I appreciate the fair and thoughtful critique provided by Morzinski and Rediske.

I'm not sure what it is like where you work. However, through conversations and visits to many university campuses, I have the impression that technology is frequently viewed as a minor component of preparing future researchers rather than an essential tool, systematically infused into the curriculum. I've concluded that in many places, using technology in your research and teaching is optional: you can use it if you want, are prepared to learn through the trail-and-error approach, and with minimal assistance or support.

Several factors provided the motivation to develop this book. First, it was written from a concern that technology was not adequately being integrated into the research preparation in graduate education. Experiences limited to one professor or one product do not begin to address the rich palette of technology tools for enhancing research productivity. Second, students and colleagues have communicated an intense need to have a means for navigating the overwhelming number of possibilities appearing in the marketplace. There are so many choices. How do we know where to start? Third, the general technology skill level in our professions is rising. I could expect readers to have a working knowledge of word processing, email, web browsing, and presentation software as a solid, beginning to intermediate, knowledge base and skill set. Finally, the foremost motivation for readers to use the resources in the book is based on their desire to enhance research productivity and should not be confused with the motivations of technology enthusiasts who are constantly in search of new cool toys.

The Electronic Scholar is organized around a research productivity model and seeks to answer the question, "How does technology enhance research

productivity?" As a result, the book is one individual's visions of the possibilities. Still needed, however, are more voices in the conversation about the technology tools that are essential for electronic scholars (in this case, medical educators). As we know, it is not difficult to fill a hard drive. However, what are the tools that enable us to fundamentally rethink how we plan, conduct, and report our research?

I look forward to the dialogue that will move us from individual visions to shared visions concerning the effective use of technology for enhancing research productivity.