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MINNOWBROOK III: A SPECIAL ISSUE

Toward Open Public Administration Scholarship

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ABSTRACT

This essay focuses on the potential of information communication technologies to move the Public Administration (PA) scholarly community into a new information paradigm. We begin with a review of conventional approaches PA scholars use to communicate with each other, students, and practitioners. After illustrating advances in Web applications, we call for an "Open PA Scholarship" in which research, teaching, and engagement are conducted in a more participatory, timely, and effective manner enabled by new technologies. We conclude with a proposal of Online PA Commons, an interactive Web platform that may facilitate the development of such scholarship.

In 1988, the Minnowbrook II conference focused on ''public management in an interconnected world'' (Bailey and Mayer 1992). Discussions about this theme continue today and were reflected in debates at the Minnowbrook III meeting during fall 2008, albeit with a different flavor. Now this ''interconnected world'' is all around us, supported by a flow of information previously unimaginable. Many would agree the biggest change since 1988 is this new digital interconnectedness, enabled by advances in information technology hardware—our computers, cell phones, other types of hand-held devices—and platforms such as the Internet, Web-based databases, and search engines. As these new information communication technologies (ICTs) reshape the way society interacts, we observe parallel changes in the landscape of public affairs, which urge us to reconsider the role of Public Administration (PA) scholarship and how we share our research and enhance our teaching.

Conventionally, governments use exclusive powers, such as tax authority or service monopolies, to provide specific public services within particular jurisdictions. Management and policy implementation are structured mainly hierarchically. Intergovernmental relations are assumed to be principle-agent problems of coordination; nonprofit and business, if involved, are mere vendors of public service provision (Knott 1993).

This traditional view has changed. Today's governments function more like information nodes (Fountain 2001), working together with other governments, other sectors, and the public in an interactive network (Agranoff 2008b; Koontz et al. 2004). State and local governments interact with each other horizontally in policy competition, collaboration, or

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innovation (Agranoff and McGuire 2003; Provan and Kenis 2008). Private and nonprofit organizations also are deeply involved in policy formation and service provision (Sandfort and Milward 2008).

In response to these changes, practitioners in the public and nonprofit sectors are deploying and experimenting with Web-based mechanisms to address public problems (see, e.g., cases presented at O'Reilly 2009). But the PA scholarly community lags behind. In the spirit of Minnowbrook, our main goal in this essay is to draw attention to this fact. In other words, we do not critique scholarship in the area of information technology and PA, such as computing, public organizational change, and performance (e.g., Bozeman and Bretschneider 1986), decision support (e.g., Danzinger and Kling 1982), or information policy and management (Mayer-Schönberger and Lazer 2007), etc. Instead, we focus specifically on how advances in ICTs, and specifically the interactive Web or Web 2.0 technologies, may dramatically change how we, as a PA scholarly community, accomplish research, teaching, and engagement with PA practitioners. We believe that this issue is relevant and critical to many recurring themes of Minnowbrook III that appear in this volume.

We start by reviewing the conventional approaches scholars use to communicate with each other, students, and PA practitioners. Then, after illustrating advances in Web applications being used by public and nonprofit managers, we highlight emerging opportunities for PA scholars in what we see as "Open PA Scholarship" that is more participatory, timely, and effective. Finally, we conclude with a proposal of "Online PA Commons," an interactive Web platform that may facilitate this development throughout our field.

TRADITIONAL SCHOLARLY ROLES AND MEANS OF COMMUNICATION

How Has the PA Scholarly Community Traditionally Reviewed and Communicated with One Another?

JPART readers are well aware that the bedrock of scholarly knowledge sharing is the process involving peer review and communication via scholarly journals. Scholarly communication has a long history dating back as far as 854 BC (or perhaps earlier), with major enhancements made to the process as new publishing and communication technologies have emerged (Kronick 1990; Spier 2002). Gutenberg's printing press in 1453 was one major technological advance that greatly changed the communication of science and led to ideas on scientific discourse, the emergence of scholarly societies, and, ultimately, scientific journals. It enabled the first academic journal as we know it, *Philosophical Transactions*, to be launched by the Royal Society of London for Improving Natural Knowledge (Spier 2002).

JPART readers also are well aware of the double-blind peer review process where scholars with relevant knowledge provide critical feedback to authors and journal editors prior to manuscript publication (Burnham 1990; Kronick 1990; Sandewall 2006). This approach has a long, evolving history dating to the 16th century (see Johns 2001; Ziman 1969), with continual improvements made as a result of new technologies; for example, the invention of the typewriter and carbon paper made it easier to replicate submitted articles (Spier 2002).

Journal publication with peer review as a warranting system led to incredible advances in knowledge in many disciplines, including PA. However, this approach of scholarly communication is not perfect, and debates or challenges ensue. One challenge relates to the

transparency and validity of the traditional double-blind peer review process (Greaves et al. 2006; McCook 2006). Ideas on how to improve this process have been proposed, with more participatory approaches providing public discourse and critique about submitted or published articles offered as an alternative. Although this idea is not new,[1] the Internet has fueled even more interest in this possibility. A special issue of the journal *Nature* explores the topic of "open peer review," suggesting that reviews (and possibly reviewer names) be made public, together with additional comments from journal readers, on preprints prior to final acceptance or rejection (Nature 2006).

A second challenge, heightened in the current environment, is fueled by the increased costs of journal publication in a private publishing market that is no longer financially feasible (Boyle 2003; Shortliffe and Uhlir 2004). The Internet offers "new technology effects" that, coupled with the high prices in traditional publishing systems, have led research libraries and others to push for "open access" systems supported by alternative financing methods (Hess and Ostrom 2007).

A third challenge relates to the limitations of publishing in article-based formats. Traditionally, the standard "publishable unit" is a 30-page manuscript. This limits readers' access to the full output of research (e.g., data sets or computer-based analytic models) for review when developing scientific knowledge. In other words, traditional modes of scholarly communication do not allow for anything to be shared other than the final manuscript summarizing research questions, methods, analysis, and findings. ICTs offer new ways to address these challenges and enable scholars to communicate more effectively with each other.

How has the PA scholarly community traditionally communicated knowledge with students?

Generations of PA scholars were schooled in a traditional approach to teaching that relied upon lectures, textbooks, and term articles. Teachers used these methods in a one-way communication flow, dispensing knowledge generated from research. More than 20 years ago, Schon (1987) questioned this model of professional education and Robert Agranoff (2008a) recently added his caution. Traditionally, PA education focused on transmitting explicit knowledge—facts, analytical tools, or methods of scientific inquiry. Effective public management and policy practice, however, illustrate the equal significance of relying on implicit knowledge—personalities, power, culture, and context. Much current PA training does not focus on these types of skills, largely because of our limited experience with how to teach them.

Considerable advances in educational research illustrate the importance of more active learning methods (Fink 2003; Middendorf and Pace 2004) as the current information environment offers new mechanisms for building our pedagogies upon this research base. Our professional accrediting body, the National Association of Schools of Public Affairs and Administration (NASPAA), recognizes this transformation and has recently updated the standards defining quality in Public Affairs Education.[2] These student learning

1 Some article-based journals, such as the *New England Journal of Medicine* and the *Journal of the Royal Statistical Society*, long have published commentaries on their lead articles.

2 See http://www.naspaa.org/accreditation/standard2009/main.asp (retrieved on January 20, 2009, and updated on June 25, 2009).

standards focus on creating abilities to navigate complexity, think critically, solve problems, and communicate across various interests. Inspired by such goals, many colleagues already have moved beyond a traditional teaching model toward new approaches. Analytical teaching cases and simulation assignments, for example, are common in many courses, allowing application of text book learning. Yet the assumption unpinning these techniques is that mere mastery of current research-based knowledge will lead to success in the PA profession.

The new ICTs provide opportunities to broaden our approach. They also allow us to teach in ways consistent with the new NASPAA standards, enabling professionals to integrate knowledge, handle complexity, and make judgments ethically and with incomplete information (Bingham, Sandfort, and O'Leary 2008).

How Has the PA Scholarly Community Traditionally Communicated with Practitioners?

A traditional assumption of PA scholars is that scientific knowledge is developed in the academy and disseminated to practitioners. Sometimes this dissemination is presumed to occur through peer-reviewed journal publications. Other times, dissemination occurs via practitioner-oriented journals, conferences, or professional associations (such as the International City/County Management Association or American Society for Public Administration). This approach assumes practitioners take information gleaned from such sources and apply it to presenting problems.

Increasingly, this one-way dissemination is recognized as insufficient. When PA is carried out by diverse institutions in complex networks, information flow is less predictable. Rather than merely disseminating results of our newest research interests, PA scholars should draw upon their unique knowledge base to interact with policy makers and the public to facilitate their understanding of intricate policy trade-offs in a complex institutional world. Too often scholars taking this position and conducting "applied research" around practice-based questions are not able to highlight this work in scholarly publications. Like scholars within other professions (Kondrat 1992; Van de Ven 2007), PA scholars should acknowledge that creating relevant research often requires grappling with different epistemologies. As Aristotle first articulated, there are fundamentally different ways of knowing for those concerned with technical, practical, or theoretical problems. Our scholarship will be more rich and relevant if we address these tensions directly through more rigorous theoretical models and research methods able to create different bridges of understanding. The new platforms of ICTs create more opportunities to facilitate and study the interactive exchange of practice-articulated problems and research-based solutions.

Early ICT Challenges to These Three Traditional Approaches

The emergence of the Internet and Web technology already has altered the ways scholars traditionally communicate with each other, teach students, and work with practitioners. E-mail has become a dominant communication means although, until quite recently, telephones or faxes were equally common. Many journals now offer electronic access and management of articles under peer review. The Web also has emerged as an alternative means of sharing research, enabling people to "self-publish" outside of the peer-review system (e.g., conference articles, early releases of articles under review, or materials not

subject to peer review).[3] Most uses of the Web, though, are unidirectional; a researcher posts material and others access it through a Web browser. We presume PA practitioners working in the same area will seek to find our research output. The same approach is used for class materials; instructors post materials that students, local or remote, can access.

Web technology enables a deeper level of information sharing, and there are movements in that direction within our scholarly community. It now is relatively simple to post data sets, teaching cases, and other learning objects into Web repositories to facilitate broader access and user feedback. *Public Administration Review* has created a ''Theory to Practice'' section that supplements journal-based articles with longer Web-based commentary written by senior scholars in the field. Some journals also are using the Web to get rapid access to scholarly information through the publication of pre-print versions of articles and reviews (Esanu and Uhlir 2004; Sica 2006). These developments signal the beginning of an era of PA scholarship in the new Web environment. Before considering more directly the potential of this era to enhance the relevance of our research and teaching, we first will reflect upon the range of interactive Web 2.0 functionality being used in the PA practitioner community because of what it suggests about future changes within the practice of our scholarship and to emphasize how the scholarly PA community lags behind practice in the use of these technologies.

WEB 2.0 TECHNOLOGIES IN THE PUBLIC SECTOR

The recent development of social networking platforms like Facebook or Twitter exemplifies the advancement of Web applications from mostly unidirectional Internet pages or exclusive listservers to more inclusive bidirectional interaction (Boyd and Ellison 2007; O'Reilly 2007). These and other so-called Web 2.0 applications demonstrate the potential to increase direct interaction and participation in coproduction processes of media content.[4] Similar to Wikipedia, many of these social networking services also harness the productive power of their users. Benkler (2006) refers to this as ''peer production,'' a system where individuals take action and produce their own content according to their own interests, in a decentralized manner.

A wide variety of interactive Web-based technologies using different approaches to peer production have appeared in the last 5 years, largely for private purposes. Increasingly, they are deployed in the public sector to improve efficiency, responsiveness, and free sharing capacities (see table 1). There are both positive and negative aspects of this transformation; regardless, they hold implications for our practice of PA scholarship in the years ahead.

Social Networking Sites that Allow People to Connect and Share Information

Social networking sites such as Facebook or LinkedIn enable users to create connections between individuals and organizations online through public profiles, messaging, and

3 One of the first examples of this was a preprint repository in physics (now found in its current form at http://arxiv.org/). A more recent example is the Social Science Research Network (http://www.ssrn.com/).

4 For a graphic illustration, see Dr Michael Wesch's award-winning video ''*The Machine is Us/ing Us*'' on YouTube (http://www.youtube.com/watch?v=NLlGopyXT_g.) or his blog and project at University of Kansas http://mediatedcultures.net/ksudigg/(retrieved on January 20, 2009).

Table 1
Current Use of Web 2.0 Information Communication Technologies within PA

Function	Unique Attributes	Examples of Current Use within PA	Research Citation or Specific Illustrative Web site Location
Social networking sites	Connection Easy sharing Proliferation of applications	• Legislators' social networking site pages • Nonprofit social networking "causes" pages • Agency-based social networking sites • Linkages for administrators (consultants and researchers) working in various levels of government	Hardy (2008) Facebook "Causes" US Intelligence community's A-Space, NASA's Spacebook Gov Loop.com
Collaborative content creation	Web-server software enabling users to freely create and edit Web page content using any browser. Includes: • Wikis • Document sharing • Content management systems	• Sharing of information within traditional bureaucracies • Information sharing between soldiers in the battlefield • Google Flu Trends	State Department's "Diplopedia"; Department of Defense's "Techpedia"; Intellipedia PlatoonLeader.org, CompanyCommand.com Ginsparg (1996)
Reader review	Reader/ user assessment of relevant content	Questions submitted by citizens to the Whitehouse to be addressed during President Obama's first online town hall meeting	"Open for Questions": http://www.whitehouse.gov/Open ForQuestions/ Harper (2009) (YouTube) CiteULike.org web bookmarking site (Public Administration keyword) Flickr.com photo sharing (groups "Public Administration" keyword) City of Santa Cruz using reader review to get citizen votes on various budget cut proposals (http://budget.santacruzcityca.gov/)

Continued

Table 1 *(continued)*
Current Use of Web 2.0 Information Communication Technologies within PA

Function	Unique Attributes	Examples of Current Use within PA	Research Citation or Specific Illustrative Web site Location
Multisource data compilation or "mashups"	Enables the recombining of publicly available data into new, usable information	Increased citizen access to: • Congressional Calendars and voting records • Political district maps • Many other examples— see links	Congress.org Data.gov as a basis for Sunlight Foundation's Apps for America contest http://www.programmableweb.com/tag/government http://wiki.sunlightlabs.com/index.php/Main_Page#Public_APIs_for_government_data
Weblogs and microblogs	Enables open comment on journal-like entries, video, or short texted communication and their aggregation	Federal Trade Commission's blog on public hearings President Obama's blog and weekly video presidential address Blog aggregation sites President Obama's Twitter feed during campaign, NASA's Twitter feed about mission findings directly from space, and Congress's Twitter feed	http://www.ftc.gov/blog http://www.whitehouse.gov/blog/ and YouTube video address http://nonprofit.alltop.com/. Twitter (@BarackObama; @NasaEdge; Tweetcongress.org) San Francisco's BART subway twitter feed (http://twitter.com/sfbart) State of Utah using twitter to communicate to media outlets (http://www.gov2expo.com/gov2expo2009/public/schedule/detail/10310)

content sharing (Boyd and Ellison 2007). These kinds of sites thrive through posting of content by their members and utilize some of the core Web 2.0 technologies described in more detail below (e.g., blogs, microblogs, and Really Simple Syndication [RSS] feeds). They have achieved significant usage by private citizens and, more recently, organizations. The successful use of these technologies during the Obama presidential campaign helped peak interest in the public sector. Although it is no longer the campaign, government agencies are now "negotiating" the terms on which they can effectively allow the use of social networking services and at the same time abide to the current rules, regulations, and bureaucratic constraints (see, e.g., US Department of Defense 2009). Moreover, the growth of GovLoop.com, advertising itself as the "premier social network for government 2.0," speaks to the potential utility of these technologies. Within the last 4 months alone, this site expanded from 5000 to 12,500 users from federal, state, and local governments, academics, and contractor participants showing a need for exchange and communication across organizational boundaries.[5]

Online three-dimensional virtual worlds, such as "Second Life," is another form of social networking where "users can socialize, connect and create using free voice and text chat" (Secondlife 2009). Although much of the use of Secondlife is for entertainment purposes, it has been used in higher education teaching and more recently is being used to support other types of online interaction and work processes. For example, in the public sector, MuniGov2.0 is a group of municipal IT professionals who meet regularly on Second Life. They have almost 500 members across the United States by now who have "avatars" (online characters) and meet weekly in a SecondLife virtual location to discuss how to use Web 2.0 tools in their local agencies. The US National Science Foundation has even explored its use in geographically distributed grant proposal reviewing processes (Bainbridge 2009).

However, as with most technologies, these kinds of innovations bring new problems. In academia, one recent example was of a Dartmouth professor who posted content on her personal profile in Facebook, assuming that only her designated "friends" could see. She later discovered that other "nonfriends" associated with her college could see these postings as well, leading to an embarrassing situation (Young 2009).

Collaborative content creation

Web 2.0 provides many mechanisms for collaborative content creation. For example, wikis are supported by Web-server software that "allows users to freely create and edit Web page content using any Web browser" (Wiki.org 2002). Perhaps the most widely known and successful wiki application is Wikipedia, which has demonstrated how a large number of disconnected people can add small amounts of information to create an Internet encyclopedia purely "peer produced" without any monetary or reputational incentives (Benkler 2006; Von Hippel 2005).[6] Wikis are now also used internally in government agencies to

5 Although the popularity has exploded, using the Internet for social networking is not completely new. As early as the 1980s, virtual communities and Internet discussion groups had peer production and social interaction characteristics (see, e.g., Rheingold 1993). The ease of the Web, with its associated embedded functionality, move-to-content sharing, and much larger number of potential users, fueled this recent expansion.

6 Even though Wikipedia content is mainly created by nonexperts, one study found that it has a relatively low error rate, comparable to the Encyclopedia Britannica, and a self-correction mechanism superior to the time-intensive publishing process (Giles 2005).

collect information and make it more widely accessible across departmental and organizational boundaries. For example, the goal of Intellipedia (run by the Office of the Director of National Intelligence) is to combine intelligence information from all 16 US intelligence agencies and create a knowledge base that moves beyond shared hard drives and e-mail lists (Olsen 2007).

Information Sharing through "Reader Review"

The most prominent example of user-driven information sharing Web 2.0 functionality is probably the search engine Google, which relies on the concept of peer production as its page-rank algorithm. The algorithm treats embedded hyperlinks in Web pages as "votes" of useful content and ranks them higher in future search results. Similarly, other Web 2.0 information sharing sites for video, photos, Web bookmarking, and news rely on users to provide content and "vote" on its usefulness. These examples are what Anderson (2006) calls "everyman reviews." We prefer to call them "reader reviews," and they involve people who may or may not have similar levels of knowledge or expertise. Reader reviews can be categorized by the level of effort it takes to generate them (what Benkler [2006] calls "task granularity"). Merely by viewing or downloading a file (e.g., watching a YouTube video), users create the easiest (in terms of effort) type of review when Web site owners monitor the number of hits they receive. The assumption is the more hits, the more utility of that particular file. Readers may expend slightly more effort when they post a vote in praise of some content (e.g., such as in Digg.com's "dig-it" voting on stories) or even more effort by posting a longer comment in reaction to Web content (such as Amazon.com's customer review function). This still would not take as much effort as someone writing a scholarly "peer review," and in many cases, it might not be a peer making the comment. But, in many circumstances, these kinds of reviews could signal useful information to others. The Obama administration has used the concept recently in the first Internet town hall: The public was invited to submit questions they wanted the President to address. The resulting list was categorized and published for another round of public ranking. The result was a "crowd-sourced" list of issues the President addressed in his Internet town hall meeting allowing participation on all levels.

Although we notice a potential for increased participation, reader reviews hold both potential and challenges. There are, for example, some incidents at the news sharing site Digg.com referenced above where users were manipulating the system, using a technique called "autodigging," the "computerized digging of a story to fraudulently promote it to the homepage" (Layton 2009).

Multisource Data Compilation or "Mashups"

Another function supported by new Internet and Web ICTs is the ability to combine data from various sources to develop new products. This function is termed "mashup" and examples abound. Many citizens are using publicly available government data to create public goods in form of information mash-up Web applications (Warner and Chun 2008). National competitions, such as Apps for Democracy or Apps for America, encourage the creation of innovative tools to help citizens solve problems. Tools recently have been created to generate calendars of Congressional bills, make laws more readable, and track contributions to elected officials from political action committees and other sources.

Weblogs

Weblogs (or blogs) allow one or more authors to communicate information beyond officially vetted and quality controlled final products quickly to a wide audience and provide the opportunity to receive comments from the public. Blogs are creating a new level of transparency and accountability in government, and they are one of the first kinds of Web 2.0 applications deployed by the Obama administration to this end. Blog aggregation sites also are increasingly common, pulling together the most popular blogs focused on particular topics. A tool called RSS allows a potentially wide and automatic distribution of published content. Once published, the content on a blog—such as political opinions, administrative ruling, etc.—is widely available, making the authors' decisions more transparent and accountable in entirely new ways. Loosely related to blogging and RSS are microblogging services, currently dominated by Twitter.com, which disseminate news and content in short messages (140 characters or less) to others subscribed to a message feed. For example, Twitter was used during the Mumbai terrorist attacks, enabling victims and eyewitnesses to communicate during the crisis. Although used by the traditional media and police, microblogs also were accessed by the terrorists (Busari 2008). Similar to Weblogs, Twitter creates a public conversation thread that can be observed by all and misused.

Incentives to Apply Web 2.0 Technologies for PA Scholarship

One key question crossing all these types of interactive Web technologies (summarized in table 1) is why people, often in volunteer situations, spend the time to participate in the use of such media. Although a complete answer exceeds what is possible in this essay, recent research is providing some clues.[7] Individual efforts in these contexts are often driven by peer production; people participate because of some personal interest in the topic and their willingness to communicate knowledge and interest to others through these technologies. Research in open source collaboration (e.g., Lakhani and Wolf 2005) report both intrinsic and extrinsic motivations driving people's contributions. Intrinsic motivations include (1) altruism and/or a need to contribute to a "social movement," (2) personal enjoyment and/or an intellectual challenge, and (3) components of social capital such as reciprocity. Extrinsic motivations for participation include contributing for learning and skill building and gaining status and recognition in a valued community.[8] Many of these motivations, especially the extrinsic ones, are quite similar to the motivations driving academics to contribute content to the pool of knowledge through traditional scholarly forum, such as journals in order to gain peer recognition and acceptance.

Besides participation, self-promotion and the incentive to control the information available about oneself or a specific topic on the Web are other important incentives. Moreover, the mere increase of data resources created using Web 2.0 tools can also be a reason to participate and use these tools: Scientists can, for example, use publicly available data (such as congressional Twitter messages), biographical information (such as LinkedIn data), or issue statements directly from blogs, such as the Whitehouse blog, in their research.

7 See, for example, Myspace.com (Gilbert, Karahalios, and Sandvig 2008); Photo sharing and tagging on Flicker.com (Ames and Naaman 2007; Nov, Naaman, and Ye 2009), Del.icio.us (Lee 2006); Twitter (Akshay et al. 2007; Zhao and Rosson 2009), YouTube (Huberman, Romero, and Wu 2009), and Wikipedia (Nov 2007; Schroer and Hertel 2009).

8 In some open source settings, some participants are now paid by their employer to contribute.

Although the specific examples in table 1 likely will evolve over time as new platforms and tools are developed, the social and interactive components of these new applications are not merely passing phenomena. On the contrary, the array of functions now being used globally illustrate a significant shift occurring in how we communicate, collaborate, and interact with government but also within and across public and nonprofit organizations. This change is not without risks, as previous examples show; misstep or malfeasance can result from the use of these new tools. Regardless, this change is fundamentally challenging the existing bureaucratic information paradigm.

EMERGING OPPORTUNITIES FOR AN "OPEN PA SCHOLARSHIP"

Rapid advances in ICTs have provided many potential benefits for all of society—mass storage of digital information, fast computation, worldwide virtual connections, and an increasing level of cyber interaction. As scholars of public affairs, we must probe the rapid changes in public and nonprofit practice, theorize about them, and document their consequences. We also must strive to employ these technologies to help *ourselves* become more transparent, collaborative, and accountable with each other, our students, and the practicing PA community. In other words, the interactive Web that we need to study, understand, and teach can—and should—be more effectively utilized to enhance how we accomplish our own scholarly work.

We believe it is important to consider the changing roles of PA scholars and changing tools of scholarship in this new Web 2.0 era. There is now new potential for Open PA Scholarship in which research, teaching, and engagement are more participatory, integrated, timely, and effective. In recent years, varied scholarly communities are adopting commitments to a new "open access publishing" committed to the free availability of knowledge distribution on the Internet (Berlin Declaration on Open Access to Knowledge in the Science and Humanities 2003; Miller 2006).[9] Our concept of Open PA Scholarship moves beyond the conventional focus on open access to publishing and includes both a broadened understanding of our research approach that more directly engages practitioners and a more appropriate strategy for educating professionals.

In the increasingly interconnected world of public affairs, PA scholars and practitioners are (or should be) participants of an open learning community, acquiring experiences and perspectives from each other across sectors, distilling practical knowledge from earlier experiments, revealing common preferences through well-discussed trade-offs, and promoting best practices toward the common goods that we collectively demand. In this vein, PA scholarship should become a process of open, participatory, and interactive knowledge building in which scholars facilitate collective learning, theorizing about, and interpreting public issues, clarifying public preferences, and helping to diffuse effective policy innovations.

Alternative Modes of Scholarly Research Communication

In Open PA Scholarship, research should be the result of "peer production" by an open network of scholars, practitioners, and students through an iterative process of practice and

9 Definitions of "open access scholarship" or "open access publishing" appear in different open access movement source documents, such as the Bethesda Statement on Open Access Publishing (2003) and the Berlin Declaration on Open Access to Knowledge in the Science and Humanities (2003).

learning. This approach pushes us from traditional understandings, where we separated our communication with each other from communication with practitioners. As Ostrom (1986) once put it, "Theory without experience is fantasy. Experience without theory is blind." There are a few specific ways to change our research practices and embrace more fully notions of peer production and engagement with practitioners.

Expand What We Consider a Research Publication

We are no longer constrained by the physical constraints of the article-based distribution system. In recent years, research products have broadened beyond printed research articles and books to include computer models of various sorts, data, statistical scripts, data-driven visual animations, spreadsheets, and even videos. Because of the importance of the public problems we are investigating, we should strive to provide mechanisms for all these kinds of products to be "published" and shared and, depending on the degree of peer review, consider them scholarly publications (a key incentive to increase sharing). This idea is not new—people already did this in the Web 1.0 environment—but this is done only sporadically by scholars who maintain their own Web sites. In order to do this effectively, we as a community will need to develop new standards for these products. For example, how might we cite a statement made in a YouTube video—perhaps by referencing a specific point in time or frame? This is not without precedent; with an advent of Web 1.0 publication, many scholars changed the way we reference things by moving from a month/year format to providing a specific date. Real-time access to research data sets, in the manner described earlier, also offers potential. Web 2.0–based metadata (data about data) and data sharing systems exist (see, e.g., Schweik, Evans, and Grove 2005). Taking into account reasonable time for a scholar to use a data set, there often is no reason why they cannot and should not be made available for others; some funding agencies already are mandating such sharing. If more PA-relevant data were available online and readily findable and available, opportunities would arise for new analyses or mash-ups of existing data sources.[10] Although not equated as a new publication, such sharing should be considered a contribution in service to PA's development as a field. With web-based applications more widely used, we have observed a "cultural shift" in that more scholars are sharing these alternative research products. To systematically encourage such efforts requires a commitment by PA promotion reviewers to see these products as either an alternative type of publication or a service contribution to the field.

Consider Potential Applications of Reader Review and Open Discourse to Complement Traditional Peer Review

Expanding what is considered a research publication begs the question of mechanisms for ensuring quality of these new research products. Given that academic peer reviewers and editors, especially in top-tier journals, are "overtaxed" (McCook 2006), how could we ever expect them to review other types of emerging publishable products, like computer models or data?

In this capacity, reader reviews are promising. For example, there is a YouTube video, *The Machine is Us/ing Us* (Wesch 2007), which effectively communicates many

10 This was a major theme in presentations made at the recent "Gov 2.0 Summit" (http://www.gov2summit.com) in Washington, DC. There was particular excitement over the Obama Administration's "Data.gov" initiative that could, potentially, lead to new "mashup" opportunities of US federal-level data.

underlying aspects of the Web 2.0 phenomenon created by an assistant professor at Kansas State University. It also is an example of the new forms of publishing that scholars might use to communicate ideas to each other, to our students, and to the broader PA community. YouTube tracked both views (908,000 when we last looked) and reviews of this video, with more than 4000 people commenting and providing a positive or negative rating. These two forms of reader reviews signal that others have found the video interesting and potentially useful.[11] In the course of research for this article, we tried to find some kind of document or more traditionally peer-reviewed product. Although we may have missed it, we were not able to find one. We think the types of reader reviews employed by YouTube could be extremely important to the next generation of PA scholarly communication. Adding tiers of reader reviews by PA academics or practitioners increases the potential utility of alternatively published products such as data, computer models, spreadsheets, videos, etc. More direct communication via reader reviews by PA practitioners to PA scholars is particularly important given the nature of our field.

Many medical journals are beginning to support Web posting of comments on their published articles, and independent organizations such as JournalReview.org are providing a centralized Web site for posting comments about published articles in selected journals. So far, PA does not have such a comparable system. Proponents of open discourse argue that, just as open access distributes primary knowledge, open discourse distributes debates and enables citizens to witness the unfolding of academic inquiry and participate in the peer production of PA knowledge building. As reader review becomes increasingly convenient with new technologies (such as "I Digg it voting"), incentives for participation will not be an issue once some common platform of web-based scholar communication on PA can be developed. Reviewing tasks that are more time consuming, such as providing longer comments, may become common practices as well when these activities are increasingly recognized as visible and tractable scholarly contributions.[12]

Note that we are not advocating to remove or replace our traditional form of peer review for scholarly publications with reader review or "open discourse." There still needs to be a scholarly-based method to warrant academic articles. But Web 2.0 capabilities integrate a new level of practitioner engagement by enabling the sharing of other research products and introducing reader reviews.

Encourage Experiments in Collaborative Content Creation and New Derivative Work

Finally, the interactive Web, coupled with new forms of licensing,[13] allows authors to choose which rights he/she keeps and which rights are given away. This allows new derivatives to be created from prior submissions, opening the possibility of new approaches to collaboration with other researchers and practitioners. Quantitative methodologists are sharing new analytic tools by developing their own extensions to the "R" statistical platform for their particular application domains (Vance 2009). Some scholars also are working closely with policy think tanks to mine large data sets that hold scholarly implications.

11 Indeed, it could be the case that 4000 readers found some posting on a trivial topic interesting. Trivial content can be weeded out, however, if this form of communication is tied to a formal scholarly community or outlet.

12 For example, many scholars are willing to comment on other people's work in their blogs. The more attention they receive, the more active they probably are.

13 See http://creativecommons.org.

Others are beginning to use Weblogs as rich sources of data in organizational analysis.[14] Still others are exploiting collaborative writing platforms to support untraditional practitioner-academic partnerships across long distances. In our view, these collaborations facilitated by Web 2.0 mechanisms are particularly important in areas of PA where there are wicked problems requiring more collaborative and rapid solutions using minds from all over the globe. Many PA scholars share the intrinsic and extrinsic incentives for peer production as discussed above, but we do not have a suitable platform to encourage or facilitate such activities so far.

Undoubtedly new applications will be developed as we move toward a more Open PA Scholarship. These and other new interactive Web technologies make it possible to envision a new role for PA researchers and push us to consider new ways of increasing the accessibility to and relevance of research-based scholarship to practice. The new environment holds similar implications for our roles and practices as teachers and trainers.

Alternative Roles and Practices to Support Student Learning

As with research, ICTs offer the opportunity to develop and implement new approaches to professional education in PA. In the context of the interactive Web—where students are accustomed to active engagement, full access to information, digitized content, peer learning, and assessment—professional education must be engaging. It also must enable a structured way of using information to understand complex situations and solve problems. It must facilitate the creation of new solutions. In this way, professional education can help move people from novices to experts in particular areas (Bransford, Brown, and Cocking 2000), initiating them into the traditions of PA practice that are or will become their professional work.

This transformation is particularly important in a world filled with information. Professional training allows people to develop frames of reference that make sense of discrete bits of information. Hopefully, it moves them beyond competency in rote skills to adeptness in framing problems, implementing solutions, and improvising when the unexpected emerges. Because our students will confront complex problem solving situations, we must design learning processes that enable them to experience what it is to navigate problems and seek solutions (Bransford, Brown, and Cocking 2000). Adult learners need situations that interrogate what they know from experience and consider alternative perspectives. They need to experience inherent motivation and assess their own mastery, even while instructors are assessing their learning performance (Middendorf and Pace 2004). From this perspective, students cannot be taught what they need to know. Instead, they must be coached through practicing what they need to do with feedback, much as what is done in architectural studios and music conservatories (Schon 1987). There are a few specific ways Open PA Scholarship changes how we teach.

Utilize New Course Delivery Platforms

Many ICT tools exist to support such pedagogy. In recent years, most PA teachers have become familiar with the use of course management Web sites such as Blackboard. Often, these sites serve as repositories for course materials such as readings, class notes, or

14 See, for example, some of the articles presented in the recent YouTube and the 2008 Election Cycle in the United States at http://youtubeandthe2008election.jitp2.net/frontpage.

PowerPoint slides. There exist, however, new platforms that enable interactive learning with Web 2.0 tools summarized in table 1.[15] In the study of public problems, these platforms allow the public world to be brought directly into the PA classroom. The new platforms enable existing and emergent technologies to be used by teachers to support a range of peer and collaborative learning.

The particular power of these tools for teaching comes from their ability to encourage students to probe more deeply into course material than conventional classroom lectures or term articles. Blogs allow instructors or students to create a stream of analysis to which others can respond directly, point by point, in writing. In this regard, they resemble discussion threads in earlier course Web pages. However, a blog interface enables more interactive and robust communication. As tools of collaborative creation, wikis also have many applications in professional education. Some of us have used them to record classroom discussions for later analysis and refinement or as repositories for neutral information everyone should know. Others have used them as a method for documenting knowledge in an emerging field, such as nonprofit management. In this way, technology platforms may enable a more engaged, peer-learning experience for PA students. Instructors will have incentives to adopt new systems once they realize the opportunity to improve the teaching and learning experiences and outcomes, but it also requires administrative support and technique assistance to ease the transition.

Enhance Current Teaching Methods

Many PA teachers are well versed in the use of analytical teaching cases that provide detailed accounts of a particular context and ask students to consider trade-offs and recommend action. It is a "signature pedagogy" of PA (Rosenbloom 1995; Shulman 2005); because students grapple with real-life organizational settings and complex field issues, this method supports active learning and application. Typically, analytical case studies are written descriptions, often in two or three pieces, to enable classroom discussion around key decision-making situations, with instructor control of the unveiling of new information. New ICT platforms support advances in such pedagogical tools. One author, for example, has developed a multimedia teaching case prototype. The student assumes the perspective of an organizational leader who must make decisions. Although such decision forcing cases are common, the multimedia platform allows more information to be provided—videos of key actors, background research about the policy problem, agency budgets—to closer approximate real-world decision making. The platform provides data for the instructor about the prevalence of various decisions, allowing in-depth classroom discussion about why—when faced with similar situations and equipped with the same analytical tools—various people responded differently to ambiguity. Evaluation currently underway to compare learning from this method with conventional case method show positive impacts on student engagement and other learning outcomes (O'Connell et al. 2004).

Other new teaching tools can be built to enhance classroom learning and research is increasingly revealing more positive learning outcomes associated with technology enhanced learning (Alavi and Gallupe 2003; Means et al. 2009). Some instructors, for

15 For example, Moodle (http://moodle.org) and Sakai (http://www.sakaiproject.org) are open source course management systems allowing many different learning activities to be embedded in a course Web page. These platforms can change the very nature of classroom learning by enabling seamless access to Web-based content, such as videos (from YouTube, PBS, etc.) or audio conference or podcasts.

example, are using personal response technology in large classrooms to provide, in real time, quantitative results to questions posed in class. Additional types of case studies, simulations, and full-immersion simulations (popularized through virtual worlds such as Second Life) can be built around complex public problem solving.[16] Models using the principles of game theory enable students to experience issues more actively than the traditional prisoner dilemmas used some by some instructors. The Web-based immersion simulations provide more complex environments and unexpected events, more closely resembling the practice environments our students will work within. Many schools are encouraging the development of such "learning objects" with institutional investments.

Encourage Sharing of Course Curriculum and Course Materials

With the growing number of institutions participating in NASPAA accreditation, there is increasing curricular convergence among public policy and administration schools nationally. This provides an opportunity. Some universities are taking open access to a new level through the sharing of educational materials. The Massachusetts Institute of Technology, for example, is making course syllabi, notes, exams, and videos widely available and free to the public through their Open Courseware initiative. Other universities are developing platforms that enable the sharing of various learning objects. In public policy and administration, the University of Washington's Electronic Hallway used a similar approach by a case study sharing platform and the Maxwell School has begun competitions for teaching materials in collaborative management, the best of which are made available.[17] More efforts could be made to share other types of teaching materials; as in research, the use of reader review functionality could help to communicate high-quality material to others.

We provide tables 2A and 2B to summarize the main proposals made in this section and to provide further reflection on the pros and cons of each as well as key incentives that need to be considered. Although the types of initiatives we noted earlier and are proposing here are in relative infancy, they suggest a significant change in how higher education will be developed and delivered in the coming years. PA scholars must engage in this transformation. Open PA Scholarship requires a new level of dialogue and sharing in how we design learning experiences and facilitate professional development. We are all participants in an open learning community, acquiring experiences from each other, from other sectors, or from others' paradigms. We must craft our own field to take advantage of and promote this type of learning environment.

CONCLUSION

In this article, we have discussed how conventional PA scholarship is bound by traditional academic communication processes. Yet the changing world and our changing field challenge us to think again about how to increase our relevance in a global context. The emerging interactive Web environment offers transformative potential, specifically related to age-old PA concerns about transparency, accountability, and relevance.

The new interactive Web technologies enable previously unimaginable strategies for global scholarly dialogue in our field. Coupled with collaborative principles embedded in

16 For example, educational prototypes such as OpenCroquet.org can be used in which students assume the roles of virtual avatars who need to navigate through environments, interacting with others.

17 See http://www.maxwell.syr.edu/parc/eparc.

Table 2A
Alternative Modes of Scholarly Research Communication: Pros, Cons and Incentive Issues

Alternative Proposed	Pros	Cons	Incentive Issues
1. Expand what we consider a research publication – include data, computer models, spreadsheets, videos, etc.	• Openness leads to further and faster innovations • Enhances our ability to recreate findings • Provides new opportunities for data mash-ups or new derivative innovations	• Could add more work to the desks of already busy PA scholars and expand what needs to be peer reviewed • Information overload	• Requires a "culture shift" and a commitment by PA promotion reviewers to see these products as either a type of publishable research product or an important service contribution
2. Consider applications of reader review	• Provides an alternative way to review the utility of alternative "published" products • Allows practitioners and/or students to provide input	• Hard to assess and control reviewer expertise in the review process • Opens up the potential to "gaming" of the reader review system	• Easier tasks (e.g., quick "I Digg it-like voting") may be more apt to be used than harder, more time-consuming tasks (e.g., posting longer comments in reaction to something)
3. Experiments in collaborative content creation	• Openness and collaborative content creation could lead to faster innovations in PA • Opportunities for practitioners at a broad (e.g., global) scale to have more direct and interactive dialog with PA academics	• Raises questions on how such a system would be created for a specialized field in PA, or at what scale • Questions of who gets credit for ideas that are generated	• Incentives depend on where and in what context these systems are deployed

Table 2B
Alternative Roles and Practices to Support Student Learning: Pros, Cons and Incentive Issues

Alternative Proposed	Pros	Cons	Incentive Issues
1. Utilize new course delivery systems	• More in line with the upcoming generation's way of working	• Requires new learning of technologies for some teachers and new administrative support	• Reviewers of PA faculty promotion packages need to give faculty credit for innovating using these technologies. New approaches to peer-reviewed curriculum development (e.g., Quality Matters) can help recognize research-based pedagogies
2. Enhance current teaching methods	• More engaged learning experiences that encourages and challenges students • Simulated environments which more closely approximate PA practice	• Requires institutional investment in development of virtual "learning objects"	• Creates new opportunities and demand for research-based learning objects and evaluations of PA pedagogies.
3. Encourage sharing of curriculum and course materials	• Openness can lead to new innovations • Openness can save faculty time (e.g., getting course content developed by another), opening up more time to contribute in other ways to faculty's own research, teaching or service efforts	• Faculty (especially untenured ones) may be hesitant to share intellectual property with others	• This approach promotes collaboration rather than competition, assuming that the best ideas and teaching materials will receive the most use.

open source software, open access publishing for both research and teaching is possible. Rather than relying solely on 30 papers or books as the means by which we communicate, more diverse publication products are possible. New forms of reviewing and rating scholarly products that complement, not replace, traditional peer review systems and mechanisms are now possible, supporting the creation of "new derivatives" from previously posted work. Alternative modes of teaching through new course delivery platforms, more engaging teaching tools, and sharing of course materials, provide opportunities to examine and refine tacit knowledge and soft skills important in public problem solving. Through sharing and innovation, this new era provides the potential for PA scholars to strengthen our roles as teachers and researchers. We can become more transparent, efficient, and effective.

Importantly, we can create new forms of dialogue not only between academics (globally), and between academics and students, but also more directly with the practicing PA

community. This latter point is perhaps the most important point in our notion of Open PA Scholarship. Knowledge of practical problem solving—for both our teaching and research—necessitates an iterative process of theorizing and practice, practice, and theorizing. We all are participants of an open learning community, acquiring experiences from each other, from other sectors, or from other perspectives of thinking. We must craft our own field to take advantage of and promote this type of learning environment.

Although we have emphasized the positive potential for interactive Web technologies for a new practice of scholarship, there is the possibility of some negative consequences. Some publicly posted teaching materials provide only bare bones content because the clear incentive for sharing has not been established; this is particularly challenging for junior faculty members working toward tenure—the ones most likely to reflect the open scholarship approach. If we expand the idea of a publishable scholarly product, it may supplement the existing PA peer review system. Creating clear incentives and using reader reviews as one mechanism of quality control, we can address both these concerns. It is likely that the change will emerge gradually as scholars or organizations in PA work to change their own communication, research, and teaching.

We believe there is the potential to work collectively toward an online Open PA Commons—a "next generation e-journal" (Schweik, Evans, and Grove 2005)—with (at least) the following characteristics:

1. A place for PA scholars, practitioners, and students to create social networks with others around similar interests;
2. A place where practitioners can communicate to the scholarly community about their pressing research needs and service-learning opportunities;
3. A place where research and teaching products can be published and disseminated following open access; and
4. A place that harnesses the power of peer production and creates new incentives for relevant scholarly products for academics, students, and PA practitioners.

There are many possibilities in what we envision. Let us provide one clear and simple example that might help to drive the importance and utility of the proposal. Imagine a Web 2.0 application on this Commons that allows PA practitioners, perhaps in certain PA subareas, to post critical research needs. They could add entries in an open access online database on critical research questions to which they need answers.[18] Others could provide reader review votes (recall our discussions of "Digg.com") on postings that matched their own needs, allowing the most critical questions to float to the top of the list. Academics departments (or their graduate students) with expertise in an area could monitor such a list (e.g., RSS feeds) and use it to shape research projects. This could lead to direct dialogue between practitioners in the field facing the problem or issue and academics researching the issue. This very simple Web 2.0-based idea, if implemented and marketed properly, could make a huge difference in increasing the relevance of Open PA Scholarship (Bushouse et al., forthcoming).

18 This example was inspired by a conversation one of the authors had with a well-read manager of a coral reef studying conservation issues who said that 95% of the academic research was not relevant to her critical problems, driven in part by the changing global climate.

We acknowledge that implementing some of these ideas will lead to new problems. If we eventually were able to create a system where more than just scholarly articles were shared and where reader reviews also were considered, perhaps as a second tier of evidence of scholarly impact to the traditional metric of peer-reviewed articles in scholarly journals, we will need to look out for opportunities for abuse. Earlier we described the computerized "autodigging" in Digg.com to increase reader votes for a particular story. This same technique could be used to create a false appearance of relevance; systems like those developed by Digg.com (see Layton 2009) will be needed to protect against abuse Moreover, it is not entirely clear how social networking technology and the idea of a "next generation e-journal" might be combined or how they might work together. We are headed toward a period of experimentation that will take time to shake out. But we believe the time has come to begin this period of experimentation and build something like an Open PA Commons.

So how could such a commons be constructed? Components of this PA Commons already exist. Several of the collaborating groups in this special issue used GoogleDocs as a mechanism for the coproduction of their articles. Existing social network sites are being used by people in various subfields of PA who attended Minnowbrook III, and the microblogging function of Facebook is used to facilitate communication. More broadly than PA, new social networking sites target scholars, enabling more open sharing of research articles and matching practitioner challenges with research solutions.[19]

To move toward realizing this idea of a PA Commons, several things are necessary. First, for legitimacy, such a Commons should be created or at least connected to well-established scholarly PA associations. Recall that in the 17th century a scholarly association called the Royal Society of London for Improving Natural Knowledge innovated by creating a new scholarly communication vehicle—an academic journal (Spier 2002). We are now in a time where leadership by PA scholarly associations can and should innovate again to produce some kind of communication system that encompasses many of these new features we describe above. We recognize that financing questions are an important issue, but too big an issue to be addressed properly here.

Second, this commons needs to be devised with careful attention to participation incentives. Given that tenure and promotion drives much of what we do, one or more PA Commons needs to be crafted in the form of a next generation e-journal, where at least some of the submissions are treated and exchanged under the peer-reviewed publication system. As we have emphasized, in some instances, we might broaden the concept of reader review for use in open sharing of teaching cases, computer simulations, or postings of research needs by practitioners and sharing of ideas around the article's topic in form of a social networking application.

We are seeing similar innovations being implemented by PA practitioners and professional associations,[20] and the PA scholarly community should not fall behind. Among the new generation of PA scholars who attended Minnowbrook III, this change might be easier. As relatively young professionals in the field, we need to innovate and move PA scholarship into this new era of communication. Yet we must partner with our more senior

19 See http://www.mendeley.com for a research sharing platform for academics and http://researchlink.acslaw.org for a platform where practitioners post challenges needing research solutions.

20 See http://www.govloop.com for PA practitioners and work of the National Academy of Public Administration (http://www.collaborationproject.org/).

colleagues and existing PA scholarly associations (e.g., NASPAA, ASPA), professional societies (e.g., ASPA, PMRA, APPAM, etc.), and journals (*JPART*, *PAR*, *JPAM*) to create this new communication system together. Which of these might participate is, of course, an open question, but these partnerships are crucial. What we potentially could see is a hybrid, collaborative effort between organizations that is similar to what is happening in the development of open source software (e.g., SAKAI, KAUHI are examples of collaboration in higher education. Or see OSGeo.org as an example of collaboration between private firms, volunteers and educational sector).

However, our goal should be that in 10 years, we look back and find that a sustained global and relevant PA Scholarly dialogue occurred online that complemented existing and more traditional forms of scholarly dialogue. The technology is available. We just need the collective will to create this new era of Open PA Scholarship.

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