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Real-Time Peer Review: An Innovative Feature to an Evidence-Based Practice Conference

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Abstract

Many health sciences librarians as well as other professionals attend conferences on a regular basis. This study sought to link an innovative peer review process of presented research papers to long-term conference outcomes in the peer-reviewed professional journal literature. An evidence-based conference included a proof-of-concept study to gauge the long-term outcomes from research papers presented during the program. Real-time peer review recommendations from the conference were linked to final versions of articles published in the peer-reviewed literature. The real-time peer review feedback served as the basis for further mentoring to guide prospective authors toward publishing their research results. These efforts resulted in the publication of two of the four research papers in the peer-viewed literature. A third presented paper appeared in a blog because the authors wanted to disseminate their findings more quickly than through the journal literature. The presenters of the fourth paper never published their study. Real-time peer review from this study can be adapted to other professional conferences that include presented research papers.

Keywords

Informatics research; library science research; mentoring; mentors; peer review; professional conferences; research; societies

INTRODUCTION

Librarians attend an impressive array of library and specialty conferences. Library conference attendance figures during recent years offer a glimpse of the magnitude of this activity. Table 1 summarizes these figures that range from 400 attendees for a specialized international conference to a general librarianship conference of 20,186 attendees in the United States. Librarians are but one set of professionals who regularly attend meetings and conferences. The Convention Industry Council estimated in a recent report that during 2009 nearly 1.8 million meetings with approximately 205 million attendees occurred in the United States.¹ These meetings, about 25% of which were professional association conferences, generated \$263 billion worth of economic activity and supported 1.7 million jobs. Worldwide over \$899 billion was spent on business travel in 2011, with North America and the European Union spending over \$513 billion of the total.²

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Beyond the substantial economic and social impacts of meetings, what actually happens at conferences? The frequent conference reports in the library and information science literature are replete with accounts of continuing education, networking, provocative speakers, vendor contacts, professional inspiration, and association business opportunities.

A conference organizing committee (The “conference organizers”) consisting of four colleagues collectively had been involved in organizing at least 20 library conferences on the international, national, or regional levels. They also had attended at least 60 library or informatics conferences during their careers. They conducted an extensive literature review on library conference outcomes. During their weekly meetings, committee members furthermore noted that library conference sponsors normally ask attendees to evaluate conference activities formally either immediately following a specific program or at the conclusion of the conference. Long-term follow-up evaluations or analysis of measurable outcomes are rarely pursued following library conferences, however.

Many conferences serve as venues for colleagues to communicate the range of their work and related experiences – from local projects to applied research results. The grey literature, consisting of such conference papers and posters, has not been subjected to the same level of rigorous peer review as found in the leading professional journals such as *Medical Reference Services Quarterly*. And, the unpublished grey literature comprises as much as 22% of the professional knowledge base.³

Some associations require a form of peer review prior to paper and poster selection, although conference planners do not widely publicize the selection criteria. Nor do most conference planners incorporate any formal feedback for presenters on either presentation form or content. These inconsistencies represent a curious gap in the evidence on the effectiveness of professional association conferences. As noted above, conference attendance stimulates the local economy. Conferees’ evaluations also typically praise conference opportunities.

No studies on the return-on-investment or outcomes measures for conference participation emerged from the literature review. Conferences are expensive events for the attendees personally and for their sponsoring institution. The 2013 Medical Library Association (MLA) Annual Meeting in Boston attests to these high costs. The inclusive registration cost \$590, three nights with single occupancy at the conference hotel cost over \$750 with local taxes, air travel cost \$300–\$500 depending upon place of origin, and inclusion of the federal per diem rate cost potentially can lead to a total amount per individual attendee approaching \$2,000. Despite the multiple reported benefits of MLA Annual Meeting attendance, many health sciences librarians would describe themselves as overworked and overextended in their jobs. Thus, time away from the office presents serious costs to the institution and to the workloads of individual health sciences librarians.

Broadly stated, are conferences worth it? While at least one industry association claims that attendance at conferences are superior to virtual forms of meeting, these assertions are not backed with any research outcomes evidence.¹ Do conference attendees integrate conference research-based content into their practices? When conference attendees do change their practices, based on their conference experiences, do these attendees sustain these changes beyond a month or two? Most importantly, and for the context of this article, does the feedback to research presented at conferences *add concrete value* toward actionable outcomes in any subsequent publication?

AIMS

The Evidence Based Scholarly Communication Conference (EBSCC) held in Albuquerque, New Mexico, March 11–12, 2010 piloted two innovations:

1. A participatory *advocacy workshop* focusing on strengthening time-limited communication skills
2. *Real-time peer review* by attendees on research paper presentations

The conference organizers wanted to generate useful evidence on the effectiveness of these two innovations given the evidence-based focus of the conference. Participants in the Advocacy Workshop developed pre-existing knowledge and skills in a collaborative constructivist learning environment.⁴ Participants interacted with advocacy experts to brainstorm ideas, develop talking points, and present “3-minute elevator speeches” for critique. Fifty-five percent of the conference attendees agreed and 45% somewhat agreed that this workshop would be “helpful with my efforts to promote the use of open-access publication at my institution” one month after EBSCC. Seven months later, 44% and 50% of the attendees respectively evaluated the workshop the same way. Regrettably, while respondents reported high satisfaction levels with the workshop for both one and seven months after the conference, the survey instruments, available from an institutional repository, did not ask them to address *actual* outcomes.⁴ Even reported instances of applying what was learned would be nearly impossible to validate. Although these long-term follow-up questions after seven months improved on conventional follow-up surveys that are deployed soon after sessions or conferences, they still exhibited limitations in tracking concrete outcomes. The survey was completed one and seven months following the conference by only 23 and 16 conference attendees, respectively, so that represents a further potential limitation for making inferences on outcomes. In the end, and despite positive ratings of this innovation by participants and the planners’ best efforts, no evidence could be offered of actual measureable outcomes.

This article focuses *instead* on the tangible *outcomes* from the second innovation. Real-Time Peer Review contrasts with the experiences with the aforementioned innovation for three reasons. First, this innovation generated evidence of actual outcomes. Second, *MRSQ* readers will quickly recognize that the Real-Time Peer Review innovation can be adapted readily to other conferences that include applied research posters or presented papers. Third, this innovation might provide a workable method for the much lamented problem of our research knowledge base reported on at conferences but not becoming translated into professional practice.

METHODS

The EBSCC employed a proof-of-concept study to evaluate the Real-Time Peer Review innovation.

Real-Time Peer Review

Step 1: Advance publicity about the conference, which included calls for submitted paper proposals, began almost a year before the conference. Prospective research paper presenters submitted 250-word proposals to the selection committee to meet a deadline six months prior to the EBSCC. Four librarians and a physician with background expertise in the subject content of the conference served on a committee charged with selecting the final four presented research papers. One conference organizer (JE), an experienced researcher and published author, worked with these four presenters to ensure that the structured abstracts in the website and printed conference program followed content conventions for structured

abstracts and that these abstracts were consistent with one another. This activity resembled similar practices during the past decade with MLA Annual Meetings and some MLA chapter annual meetings. This same individual mentored presenters with refining the 2,000-word research papers stylistically. For example, he encouraged authors to use the active rather than passive voice, whenever possible, in their submissions. The four finalists then submitted their refined 2,000 word research papers a month prior to the EBSCC.

Step 2: Conference attendees in the audience completed half-page, paper evaluation forms for each presenter immediately after each presentation. Sixty percent of attendees voluntarily completed real-time peer review feedback forms.

- Presenters received an average of 22 feedback forms from attendees.
- On average, each presenter received 15 comments on his or her methodology and 15 comments on his or her interpretation of the research from attendees.

Most feedback was positive using adjectives such as “good” and “solid.” A minority of feedback forms contained actionable feedback for publication. Reviewers could exercise the option of identifying themselves and provide contact information to work with the presenter on any future manuscript. Figure 1 features a generic version of the forms that contained the name of the presenter and the title of the presentation.

Step 3: The conference sponsors encouraged presenters to publish their manuscripts in the peer-reviewed professional journal literature. Once the manuscripts had been submitted for peer review, one conference organizer (JE) maintained contact with the presenters to monitor their progress and to mentor them with encouragement to continue with the iterative peer review process. Along the way, the authors reported their frustration with the length of time and detailed changes suggested by peer reviewers. This same conference organizer did mentor some presenters on interpreting and gauging the relative importance of some peer reviewers’ comments. Incidentally, this ombudsperson role, while not necessarily innovative, could be adopted easily by associations such as the Medical Library Association, its chapters, or its sections as a standard protocol to encourage translating research into professional practice. Professional journals probably could not offer this guidance from a logistical vantage point. Journals also possibly should not assume this ombudsperson or mentoring role due to inherent conflicts-of-interest.

RESULTS

Two of the four presented research papers were published in the journal *Evidence Based Library and Information Practice*.^{5, 6} Authors of a third manuscript elected to disseminate their results more quickly through a blog⁷ rather than in the journal. The authors of the fourth manuscript contemplated publishing in another journal, but were lost to follow-up when the primary author changed. A year later, the new lead author responded to a query by the conference sponsors, stating “we felt the reviewer’s comments called for such extensive revisions that we decided not to resubmit to a second peer review. We considered submitting to other journals... but in the end we abandoned the project and moved on to other things.”

The first and second presentations later converted to manuscripts received nine and seven actionable comments from peer reviewers respectively. These two published articles in the journal had evidence of incorporating seven and four of these suggestions accordingly. Additionally, five out of the approximately 50 session attendees elected to identify themselves to presenters to offer future assistance in improving the presenter’s research report. Table 2 lists the actionable items offered by real-time peer reviewers for all four presentations in order to protect author confidentiality. Table 3 illustrates how real-time peer

review does and does not resemble the characteristics of traditional editorial peer review in several ways.⁸

DISCUSSION

Two of the four presenters published their research findings in a peer-reviewed journal through a process that employed the real-time peer review innovation described in this article. This represents a kind of measureable outcome for the conference rarely reported upon by the library or informatics literature. The rate of publication from this conference exceeded the average rates of publication resulting from MLA Annual Meetings with only minimal levels of extra effort expended by all colleagues involved with the evidence-based conference.⁹

Conference organizers gained a number of “lessons learned” from this experience. First, the presenters at this conference were agreeable to having their presentations subjected to real-time peer review. Would it be likely that far fewer presenters at other conferences will want to have their research reports evaluated in this manner? This scenario seems likely, so the conference organizers recommend that future real-time peer review be a voluntary option for conference presenters to elect to pursue.

The conference sponsors employed a paper method because of the research session audience size of only about 50 conference attendees. Future conferences could either distribute audience response systems (i.e., “clickers”) or establish a website dedicated to receiving real-time peer reviews via mobile devices through collegial “crowdsourcing.” The print system at this conference was anonymous, although the peer reviewers in the audience at this conference could identify themselves if they elected to assist the presenters with refining their manuscripts. These same conventions could be replicated using more modern information technology. Third, real-time peer review probably best suits presented research papers or posters since this process *anticipates* rather than duplicates peer-review processes at research journals.

The proof-of-concept approach employed in this study offers an alternative to the traditional case study design when reporting on unique yet promising innovations. Recent articles in health sciences librarianship have featured the proof-of-concept approach, which suggests an emerging genre of research article.^{10, 11} This article genre reflects a larger trend toward using Minimal Viable Product^{12, 13} (or “Lean Manufacturing” or sometimes the slang phrase “Launch and Learn”) models of limited effort and close attention paid to formative customer feedback when exploring new innovations. In fact, the currently popular document management system DropBox™ represents this Minimal Viable Product¹⁴ approach to introducing high output, minimal effort innovations. One author has provided probably the most-readable explanation of Minimal Viable Product with 12 common characteristics found in many efforts that employ this approach.¹⁵ Librarians meanwhile appear to be adapting the Minimal Viable Product from the worlds of information technology and manufacturing.

Conference organizers determined that the Real-Time Peer Review form used for this conference (Figure 1) could be revised based on their at-the-time conference experiences and their later reflections. For example, the form could emphasize and detail more about the research methodology rather than the presentation aspects without expecting audience members to expend much extra effort. The research methodology section on Figure 1 could be expanded to include questions about hypotheses or research questions, research designs, analyses, and interpretations. Future investigation of this approach could seek feedback from presenters on the value each kind of feedback (e.g., research methodology, format, language

selection) provides to the overall quality of the final published work. Figure 2 offers a possible improvement to the form to aid future conference planners.

An Opportunity for Mentoring

This article describes real-time peer review and the knowledgeable assistance to guide presenters toward publishing their research. Could both activities represent different forms of mentoring? Real-time peer review provides a crowdsourcing form of mentoring that offers a finite and episodic commitment by audience members. Although “mentoring” might still be portrayed as a senior member of a profession helping along a far more junior member of the profession, contemporary mentoring in the twenty-first century now has many variants.

Johnson defines mentoring as providing “the protégé with knowledge, advice, counsel, challenge, and support in the protégé’s pursuit of becoming a full member of a particular profession.”¹⁶ While Johnson’s definition might suggest a hierarchal relationship, a close examination of his definition does not dictate a largely unequal relationship between mentor and protégé. Johnson proceeds to outline core functions of mentors. His list includes: (1) provide encouragement and support; (2) teach and train; (3) provide information: demystify the system; (4) challenge (encourage risk taking); (5) deliver feedback (positive and less positive). Real-time peer review definitely seems capable of embodying functions one, two, and five. The longer term mentoring toward publication seems capable of embodying all five core functions of mentoring.

Kathy Kram is considered to be one the world’s foremost experts on mentoring. Her latest volume on mentoring suggests that mentoring takes many diverse forms, and that these less expected forms need to be better understood.¹⁷ Barnett similarly has argued that the lack of conventional mentors in the face of huge demand has spawned new forms of mentoring.¹⁸

For the past decade, the library profession has attempted to foster mentoring relationships with limited success. Perhaps the profession needs to think more broadly to consider less conventional forms of mentoring such as real time peer review and publishing mentors to advance the maturity of the published knowledge base?

CONCLUSION

The real-time peer review described in this article offers a promising method to provide direct, immediate, and actionable feedback to presenters. When coupled to a mentoring role by a colleague, it suggests that it results in the published literature. These dual innovations, and most likely some of the adaptations recommended above, might enhance future conferences and other research-reporting venues.

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[Name of Evidence-Based Conference Blocked]**Research Paper Presentations**

TITLE

AUTHOR(S)

PARENT INSTITUTION(S)

Please provide feedback to your colleague on the following elements:

Methodology:

Interpretation:

Presentation:

Other:

☐

Yes! I would like to be in touch with the speaker about suggesting ways to improve the manuscript for publication in (name of journal blocked).

Print name:

Email address:

FIGURE 1.

Generic Real-Time Peer Review Form

[Name of Conference]
Research Paper Presentations

TITLE
AUTHOR(S)
PARENT INSTITUTION(S)

Please provide feedback to your colleague on the following elements:

Clear research question and hypothesis

Appropriate research design

Clearly-described methods

Appropriate analysis

Clearly-described analysis

Interpretation

Other:

☐

Yes! I would like to be in touch with the speaker about suggesting ways to improve the manuscript for publication in (name of journal blocked).

Print name:

Email address:

FIGURE 2.

Suggested Revisions to Real-Time Peer Review Form

TABLE 1

Attendance Numbers for Recent Librarianship Conferences

Association Name and Reporting Year	Attendance
American Library Association (2010)	20,186
Australian Library and Information Association (2010)	673
Canadian Libraries Association (2012)	800
European Association for Health Information and Libraries (EAHIL) (2010)	400
Medical Library Association (2010)	2,361
Special Libraries Association (2011)	4,300
Svensk Biblioteksörening/the Swedish Library Association (2011)	566

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TABLE 2**Examples of Actionable Suggestions by Real-Time Peer Reviewers**

"Identify the specific question you used in the interviews; also identify the methodology you used to analyze the answers to questions."
"Don't remember your final <i>n</i> , so would suggest adding info about size of the total population..."
"Provide data before conclusions."
"Generally good, but did your data really support exciting conclusion about transformative use? May be true, but did your evidence support or is this your opinion...?"
"Could you comment on how and where [name of event] was marketed?"
"It's an interesting idea to use the tool you are evaluating as the evaluation tool. I think it would be good to address this in your paper."
"Did you consider using behavior change...to measure the effectiveness of the training programs?"
"You might add [name of resource] to your analyses to expand your comparison."
"Would be good to analyze why so few faculty attended."
"Need to breakdown results so it is readable."
"You might also want to measure access these workshops afforded the library to their community in order to provide training on other library resources—if the workshops did this."
"Interpretation seemed to be based on enthusiasm rather than hard cold facts (although you were open about that)."
"Were new collaboration partners identified?"
"A comparison chart might be useful in your paper."
"Interpretation seems sound but would rather have seen a comparison against [another type of resource]."
"Was the time worth the return? What is target/goal of the program?"

TABLE 3

Comparisons between Traditional Publishing and Real-Time Peer Review

Traditional Publishing Peer Review	Real-Time Peer Review
Asynchronous	Synchronous
Delayed feedback	Nearly immediate feedback
Text only	Text with reviewer option for direct interaction
Begins with submission for publication	Precedes submission for publication
Formal and likely structured feedback	Less formal and less structured feedback
More time to review and re-read	Proceeds quickly with no re-reading
In-depth and comprehensive review	Tendency toward feedback that is superficial or focuses on selective aspects of the research
Normally 2–3 reviewers	Large numbers of potential reviewers
Reviewers normally selected for their subject expertise	“Crowd Sourced” audience consists of who attends; expertise might vary
Potential for hyper-critical reviews	Potential for hyper-critical and possibly inappropriately negative reviews
Author and reviewers’ identities concealed from one another (“double blind”)	Reviewers’ identities concealed from authors only (“single blind”)