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Reviewing Apps: Taking Evaluation Skills beyond the Library

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Reviewing Apps: Taking Evaluation Skills beyond the Library

Abstract

From 2014-2016, the National Networks of Libraries of Medicine, MidContinental Region ran the Mobile App Experience Project. This project provided funds for health science librarians to purchase apps via iTunes or Google Play. In exchange, participants were asked to thoroughly evaluate each app and share their experience in using them with the library community. Evaluators were equipped with an App Evaluation Report Form (AERF) to help develop a systematic and critical evaluation of mobile apps. The AERF guided the users to report on an app's: authority of information sources; accuracy and objectivity; currency of information; organization and usability; and purpose. After completing the project, participants were asked to respond to a brief questionnaire about their experience.

This paper will cover the basics of the project, its challenges and successes, and suggestions for how academic librarians could establish a similar project into their college or university.

Cover Page Footnote

This project has been funded in whole or in part with Federal funds from the Department of Health and Human Services, National Institutes of Health, National Library of Medicine, under cooperative agreement number UG4LM012344 with the University of Utah Spencer S. Eccles Health Sciences Library.

Reviewing Apps: Taking Evaluation Skills beyond the Library

The National Network of Libraries of Medicine (NNLM) is a nationwide program coordinated by the National Library of Medicine. Its mission is to advance the progress of medicine and improve the public health. The MidContinental Region (MCR) of the NNLM has previously funded projects where mobile devices were provided to librarians and community health providers. After evaluating the way these devices were utilized, it became clear that the cost of for-fee apps was a barrier restricting our members from using apps that could potentially improve work performance or efficiencies or provide an easier way to locate and share health information. This sparked the idea for the Mobile App Experience project, which funded members of our organization to download, experiment with, and critically evaluate mobile apps.

Literature Review

When smartphones entered the mobile market in 2007, they heralded the ability for consumers to download third-party software applications, known as mobile apps. As of 2016, Pew Research Center has found that 77% of U.S. Adults own smartphones and over 12% are “smartphone-only” internet users – who get all of their internet access through a smartphone instead of traditional home broadband services. Over half of U.S. cell phone users report downloading at least one health-related app and using them daily (Krebs & Duncan, 2015). A 2015 systematic review (Payne, Lister, West, & Bernhardt) studied the literature on health apps and found the most studies focused on evaluating apps for disease prevention and management, monitoring health behaviors and vitals, content analysis and utility, and user experience. In developing a systematic review protocol to assess usability questionnaires employed in the study of health apps, it was found that most researchers either used general usability testing surveys or created their own (Zhou, Bao, & Parmanto, 2017). No questionnaires specific to health-science librarians use of mobile applications were identified during the planning stages of this project.

Method

To address the app cost barrier, qualified Network member applicants were provided with \$50 app purchase cards in exchange for downloading at least four apps and evaluating them using an App Evaluation Report Form. Two cohorts of librarians participated in this project from May 2014 to April 2016 and submitted a total of 122 evaluations.

Participants were required to work at a NNLM MCR Network member institution and be a professional librarian. The application form allowed for potential participants who did not have a Master’s level degree in librarianship to provide an explanation as to why they should be considered. Participants agreed to:

- allocate the time required to experiment with at least four appropriate for-fee mobile apps;
- fully report on those apps using the online App Evaluation Form; and
- submit their reports by quarterly deadlines.

Applications were reviewed for eligibility and, once approved, participants were sent either an iTunes (for iOS devices such as iPhones and iPads) or GooglePlay (for Android and Windows devices) purchase card. In our first cohort (Year One), 13 members were selected to participate and were provided with purchase cards totaling \$650. The second cohort (Year Two) was expanded to 19 participants, with \$950 distributed via purchase cards. We had a diverse group of both academic and hospital librarians represented in our participant group, with at least one participant from each state in the region in both cohorts (See Figure 1).

Year One	13	Year Two	19
Library Type		Library Type	
Hospital	6	Hospital	5
Academic	7	Academic	14
Card Type		Card Type	
iTunes	10	iTunes	15
Google Play	3	Google Play	4
State		State	
Colorado	3	Colorado	3
Kansas	3	Kansas	2
Missouri	2	Missouri	7
Nebraska	3	Nebraska	4
Utah	1	Utah	2
Wyoming	1	Wyoming	1

Figure 1

In terms of app selection, participants were advised that apps must be appropriate for their setting and cost money either for the initial purchase or for in-app purchases. The criteria was purposefully left broad in hopes that members would be more likely to try a variety of apps that would be useful in their particular work environment.

The app evaluation criteria used for the project was a modified version of the app evaluation worksheet developed by faculty at the Spencer S. Eccles Health Sciences Library for a Topics in Pediatrics course (University of Utah). This form was modified by former NNLM MCR Technology Coordinator Rachel Vukas as a web form using the SurveyMonkey platform. The form asked participants to provide basic app information (name, cost, platform, etc.) and more detailed evaluation in the areas of credibility, purpose, bias, currency, and organization.

After each quarterly deadline, summaries of the reviews were shared with the region in an article in the MCR's Plains to Peaks Post newsletter. These posts were well received – in the 2016 MCR Spring Questionnaire, 23 out of 28 readers indicated that these reports increased their awareness of mobile apps. Apps were ranked on a scale that ranged from Excellent to Not Good, with the majority of apps reviewed falling into the Excellent or Very Good categories. In both cohorts we found that about 2/3 of the apps were focused on health or medicine and the remaining third were productivity apps. The apps covered a variety of topics such as password management, diagnostic tools, patient education, medical calculators, pdf viewers, and much more.

Results

Due to the use of purchase cards, we were only able to collect app cost data from participant reports. In Year One, participants reported spending a total of \$305 in on 46 apps, which was an average of \$6.63 per app. The highest cost app was \$24, but the average was brought down by several free apps that were reviewed despite the project specifications. There was \$345 remaining on purchase cards in Year One. The Year Two cohort reported spending \$625 for 76 apps, bringing the Year Two average cost to \$8.22 per app. The highest cost app was \$45, but again the lowest app was free. Based on this, we calculated the remaining Year Two funds to be \$325. Participants were able to find excellent apps for reasonable prices.

After each cohort submitted their final reviews, they were asked to complete a brief self-evaluation using the SurveyMonkey platform. In year one participants were asked to respond to the following prompt: "Participating in this project benefited my program" on a scale of Very Positively to Not Positively. 15% of participants indicated that this benefited them

very positively and 54% indicated it was a positive benefit. While no one indicated that this project was not positive for them, 31% of the participants did not respond.

In Year Two, the self-evaluation was modified and consisted of two questions using a 5-point Likert Scale. When asked their level of agreement with the statement “My involvement in this project benefited or enhanced my professional development,” 26% strongly agreed, 47% agreed, 22% neither agreed nor disagreed, and 5% disagreed. They were also asked to indicate their agreement with the statement “I now feel more confident in my ability to evaluate mobile apps,” 26% strongly agreed, 58% agreed, 11% neither agreed nor disagreed, and 5% disagreed.

We were pleased with the overall rate of participation. Most reviews were submitted by the established deadlines (73% in Year One/ 74% in Year Two). There were a smaller number of late reviews submitted, though these were usually sent after a request for an extension (21% in Year One/ 26% in Year Two). Two participants ended up dropping out during the final quarter of Year One, so there were a total of 6% of expected reviews that were not received during that year.

After the project completion, a rubric was created to help determine the quality of evaluations submitted. This rubric was based on elements that we would have liked to have seen in an ideal completed evaluation. The evaluation form had four open-answer comment fields that asked for more information on each section completed. These sections were not required, but the information in these fields provided deeper insight and richer information about the apps reviewed. The remaining questions were all required, but gave reviewers the option to select “Information Not Available” as an answer. We noted a large number of these responses were submitted, and while many of these were probably the correct response as app information is not always readily available, there were a few questions where that response did not make a lot of sense: questions such as “Are there ads?” or “When was the app last updated?” Based on this, we down-graded evaluations each time that there was a blank response or they used an “Information Not Available” response when that information should have been easily accessible. There were a total of seven possible deductions and evaluations fell in a range of an A (0 deductions) to G (6 deductions). As you can see in the chart below (Figure 2), the majority of evaluations were of an exceptionally high quality.

Figure 2

Discussion

Running this project was a fun endeavor and many of the participants seemed to enjoy the work involved. The variety of apps reviewed was a welcome surprise and we were pleased to see many unanticipated app types and subjects included. Overall, we were happy with the evaluations and the amount of effort our participants put forward in this project.

Of course, there were a couple challenges in running a project like this. We had projected that our participants would select higher cost apps, and were disconcerted with the low average app cost and large amount of leftover funds. While working with the participants was mostly a pleasure, it did take some effort to stay on top of them and ensure they were meeting deadlines and submitting quality evaluations for appropriate apps. In hindsight, we feel that most of this difficulty was due to the evaluation form itself. The form was too comprehensive for the information we wanted to gather, which made completing reviews a time-consuming process.

Were we to run this project again or be approached for advice from someone running a similar project, we would make the following recommendations. First, we would either lower the amount of funds provided on purchase cards or encourage participants to select higher cost apps. Second, we would revise the evaluation form to make it shorter and more concise and require responses to open-ended comment boxes. Finally, we would offer more guidance in app selection, as this was a time-consuming process for both the participants and project managers.

While this project was specifically intended for medical librarians, the methodology could easily be transferred to an academic library setting. College and university librarians could better familiarize themselves with mobile apps used in their liaison areas by downloading and evaluating them in a similar project. This type of initiative could also be used as a way to increase collaboration with college faculty and staff and garner their evaluations of apps used in their subject areas. Providing funds for students to create critical reviews could be an interesting project to undertake with a student group or group of student workers. Additionally, reviews of free apps would be a unique way to teach information literacy in library instruction sessions.

This project has been funded in whole or in part with Federal funds from the Department of Health and Human Services, National Institutes of Health, National Library of Medicine, under cooperative agreement number UG4LM012344 with the University of Utah Spencer S. Eccles Health Sciences Library.

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Appendix

Mobile App Experience Questionnaire

1. Project Deadlines

PURPOSE:

The purpose of the Mobile App Experience Project is to 1) assist participants with accessing/experimenting with paid apps that might improve work performance or efficiencies (vs. free apps) and 2) to have them share their experience with the library community.

QUALITY:

There is no limitation on what type of app may be selected for evaluation except that it should be useful in a work environment. Participants should realize that their evaluations will be shared with the library community via the NN/LM MCR website, publications, conference presentations, etc. The intent of the Form below is to guide participants to submit quality app evaluations.

DEADLINES:

Each funded participant has agreed to evaluate at least 4 apps. We would like 1 evaluation submitted by the deadlines below. Participants **MUST** contact Alicia Lillich (alillich@kumc.edu) or John Bramble (john.bramble@utah.edu) if they are not going to be able to meet the deadlines below.

1st - July 31, 2015

2nd - October 31, 2015

3rd - January 31, 2016

Last - April 15, 2016 (Please note this is an earlier than normal deadline)

FORM

The Mobile App Evaluation Form was converted from the Spencer S. Eccles Health Sciences Library's "App Evaluation Worksheet" that is used by students in "Topics in Medicine Pediatric Rotation" at the University of Utah School of Medicine. Thanks goes out to the faculty for allowing the NN/LM MCR to base this form on their worksheet.

***1. Who are you?**

First & Last Name:

Institution:

Email Address:

Phone Number:

***2. Which quarter are you reporting in?**

- ☐ 1st (May 2015 - July 2015)
- ☐ 2nd (August 2015 - October 2015)
- ☐ 3rd (November 2015 - January 2016)
- ☐ Last (February 2016 - April 2016)

*3. BASIC APP INFORMATION (Type "None" if info is not available):	
Qa. Name of your app?	<input type="text"/>
Qb. Cost of the app (at time of purchase)?	<input type="text"/>
Qc. Who is the primary user (health professional, information professional, laypersons, etc.)?	<input type="text"/>
Qd. What is the discription for this app?	<input type="text"/>
Qe. Website address for the app?	<input type="text"/>
Qf. Email for product support/questions	<input type="text"/>
Qg. Telephone for product support/questions	<input type="text"/>
Qh. Address (mailing or physical)	<input type="text"/>
*4. OPERATING SYSTEM (mark all that apply):	
☐ iOS	
☐ Android	
☐ Other (For instance, does it operate in a web browser?)	<input type="text"/>
*5. APP CREDIBILITY (Type "None" if info is not available)	
Qa. Who is responsible for the content of this app?	<input type="text"/>
Qb. What are the author's/contributors credentials?	<input type="text"/>
Qc. What is the organization sponsoring/producing the app?	<input type="text"/>

***6. PURPOSE (Select "n/a" for question NOT applicable to your app)**

	Yes	No	n/a
Inform or educate?	☐	☐	☐
Persuade or promote?	☐	☐	☐
Behavior modification?	☐	☐	☐
Motivational?	☐	☐	☐
Increase efficiency?	☐	☐	☐
Is a mobile device the best platform for carrying out the app's purpose/function?	☐	☐	☐

Please add additional comments that you feel would be helpful.

***7. BIAS, AUTHORITY, & ACCURACY**

	Yes	No	Info NOT available
Does author affiliation appear to influence the views presented?	☐	☐	☐
Are there conspicuous political, cultural, or religious perspectives presented?	☐	☐	☐
Are there advertisements on the app?	☐	☐	☐
Is the page well written (no typos)?	☐	☐	☐
Was the app verified or peer reviewed by others?	☐	☐	☐
Are sources used in the app cited?	☐	☐	☐

Please add additional comments that you feel would be helpful.

***8. CURRENCY: Tell us about the currency of the information used in this app:**

	Qa. When was the information found in this app published or posted?	Qb. When was the information last revised or updated?	Qc. Is the information current or out-of-date for the app's topic?
Please provide the most appropriate response:	<input type="text"/>	<input type="text"/>	<input type="text"/>

***9. APP ORGANIZATION (Tell us about the apps organization):**

	Qa. Is the information well organized?	Qb. Is the app easy to use?	Qc. Is the app searchable?	Qd. Is there an index or table of contents?
Please provide the most appropriate response:	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>

What else would you like to share regarding the app's organization?)

***10. Overall, how would you rate the app?**

- ☐ Excellent
- ☐ Very good
- ☐ Fairly good
- ☐ Mildly good
- ☐ Not good at all

11. Is there anything you would like to add that was not covered above?