

Amazed, appreciative, or ambivalent? Student and faculty perceptions of librarians embedded in online courses

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Abstract

With the continuing trend toward university courses being offered online, there is corresponding need for academic librarians to support students in those digital spaces. We developed a sustainable model for embedding librarians to provide research support in online courses, and then investigated the impact we were having on student learning outcomes and what students and faculty think about our efforts. This paper outlines our model and presents survey feedback from students combined with user data from our course management system (CMS) to discuss how well we are doing and how this evidence can inform our embedded librarian service going forward.

Keywords: academic libraries, embedded librarianship, information literacy, faculty-librarian collaboration, course management system

The strong service ethic that underpins librarianship is exemplified by embedded library services. This direct, point-of-need support to researchers and instructors navigating information resources is an excellent example of how librarians bring their knowledge and expertise into increasingly digital learning spaces.

The popularity of online education is partly due to the flexibility it provides students to participate in academic programs or courses regardless of geography or, to some degree, scheduling. However, the time shifted, often text-centric and solitary reality of post-secondary online education presents different challenges and opportunities for teaching and learning.

Providing individual research support to distance students is more time consuming than supporting students in person. Given the time shifted nature of email interactions, the absence of nonverbal cues available when talking in person, and the need to write rather than talk, more time is spent in written correspondence with students than would be spent talking to them in person. In an effort to limit the number of individual research questions received by the small staff complement at Royal Roads University (RRU), the librarians developed a sustainable model of embedded librarianship that delivers timely library instruction to students in the midst of research-heavy courses. The purpose of this paper is to evaluate how well our model of embedded librarianship is being received by students and faculty, and to consider how we might improve that service.

Literature Review

The concept of embedded librarianship has been applied to describe a spectrum of librarian engagement. Schulte (2012) rightly pointed out that the topic “can be somewhat difficult to define because of the wide range of approaches and interpretations presented in the literature” (p. 2). Dewey, (2008) credited with coining the phrase, “embedded librarianship” provided the most professionally proactive and far reaching description of embedded librarianship. She called on professionals to influence curriculum development, contribute to the development of physical and virtual campus spaces, play key roles in campus research, liaise with student governing bodies, and participate in campus governance. Interestingly, she did not highlight the importance of librarians supporting student research, perhaps taking this as a given. Researchers who followed Dewey described more tempered and focused examples of the service that have built on more traditional librarianship including having librarians work as co-principal investigators in

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research projects, (Brandt, 2007) participating in curriculum development, (Kumar, Edwards, & Ochoa, 2010) providing in-depth research support to students in specific classes, (Berdish & Seeman, 2010) providing support to student research teams, (Konieczny, 2010) being active in delivering a course, (York & Vance, 2009) or providing students with links to library resources and a means to ask for personalized help (Kearley & Phillips, 2004). Shumaker and Tyler (2007) describe the common element in all these examples as “co-location” and noted that “whether it is physical or virtual, meeting the needs of the user at the point of need where ever that may be is critical to the embedded librarian service model” (Shumaker & Tyler, 2007, p. 12).

Within the literature on embedded librarianship there is significant focus on providing support in online course spaces. Konieczny (2010) began her embedded service by targeting research-heavy courses in allied health programs and worked with faculty to add a library folder to targeted course websites. Initially these folders contained links to library resources, help guides, and multiple pathways to personalized assistance. Central to Konieczny’s early approach, though, was also staffing an online discussion board where students could post questions so that all class members could share in the responses. In later course offerings Konieczny also provided synchronous library instruction sessions, answering students’ questions live. Instructors with whom Konieczny was working quickly recognised the value of providing library support within course sites and began recommending it to their colleagues. In an effort to meet growing demand, Konieczny further developed her folder of library resources and made it available for other course sites. Given existing librarian staffing, however, these folders were usually provided without a librarian also being available to staff an asynchronous discussion board or provide a synchronous instruction session.

Kealey (2011) began with a similar approach to Konieczny but applied it more broadly. She worked with academic units to ensure that all online courses included links to library resources, learning objects and contact information for requesting personalised help. However unlike Konieczny, Kealey did not staff a course-based discussion board or synchronous instruction sessions but instead developed customized screencasts for targeted medical courses and then gave graded tests to measure student learning. The difference in approach enabled Kealey to provide customized course-level support in a more time-shifted way. While she did need to grade tests, she did not need to monitor a forum or deliver a live webcast.

Love and Norwood (2008) began with the intent of offering support more closely in line with Konieczny’s approach by providing links to library resources and existing learning objects as well as monitoring a course-specific forum where they could answer students’ questions. Given the opportunity to review students’ bibliographies near the end of the first semester, however, they gained fuller insight into the support students needed and altered their involvement. By the third course offering, Love and Norwood assigned a checklist of research tasks for students to complete and provided a synchronous online instruction session where they could respond to student questions live, via text chat.

Matthew and Schroeder’s (2006) exploration of embedding seems to have begun in a more ad hoc manner, taking up an invitation to participate in a mid-term discussion about library research in an online undergraduate psychology course. With positive feedback from the instructor and students they explored other approaches for their involvement and published advice to librarians considering similar services. They recommended that librarians only involve themselves with courses with a library research assignment, that they have their own forum in each course site, and that the instructors publicly endorse the librarian as a valuable in-course resource.

York and Vance (2009) echoed and expanded on Matthew and Schroeder’s advice. From their survey of 159 librarians, 73% of which worked at institutions embedding librarians in fully online courses, they made several recommendations on providing an embedded librarian service. These included making sure the library’s website is at least linked from all course sites, but they encouraged librarians to become active course participants with sufficient permissions to engage with students in discussion forums or via email, or even through delivering online instruction and administering of quizzes. In recognition of the workload realities of embedding, they encouraged being strategic about what courses librarians support and distributing the workload among librarian colleagues. Their final recommendation was to encourage librarians to market the embedded service so that faculty understand the service available.

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Chesnut, Wesley and Zai (2010) provided advice from a more managerial perspective, mirroring York and Vance's points related to working within operational capacity. In describing their implementation of an embedded librarian program at Northern Kentucky University they encouraged librarians to develop a shared repository of digital learning objects, share workload among staff, and understand that adding an embedded service means recognising the need, or perhaps the opportunity, to cut back service levels in other areas.

Embedding at Royal Roads University

Royal Roads University is a small university in Victoria, British Columbia, Canada. The university specializes in delivering applied programs to approximately 2,000 full-time equivalent (FTE) students mostly through a blended model of distance learning and short on-campus residencies; about two thirds of programs are delivered at the graduate level. The library serves a diverse student population that includes young adults starting or transferring to complete their undergraduate program, as well as mid-career professionals returning to undergraduate, graduate or doctoral studies after what can be a significant number of years away from academia. In recent years there has been growth in the number of international students taking programs geared towards language learning and integration into our domestic programs.

Academic programs at Royal Roads are delivered using a cohort model with intakes scheduled at different times throughout the year for the different programs. All students enrolled in degree-granting programs attend library instruction sessions during their first on-campus residency and are therefore exposed to the databases and other library resources at their disposal. These sessions are typically mandatory, last about ninety minutes, and enable librarians to explain library services, demonstrate library resources, and be seen as friendly and available to help. The librarians used to teach students during their second on-campus residency, but a shortening of residencies and a belief that they could meet their research support role in other valuable ways led to an exploration of embedded librarianship.

The librarians began experimenting with embedding in online courses in the spring of 2011 and piloted a more formalized process in the autumn of that same year. All course sites were built in Moodle, the university's course management system (CMS) and each course shell included a link to the library's homepage by default. Preliminary efforts at embedding were largely reactive with librarians primarily monitoring and posting to discussion forums during the literature search portion of research methods courses. In considering how to develop the service with just three full time librarians serving approximately 2000 FTE students, there was a conscious and deliberate effort to make sure the service remained sustainable.

Mussell (2011) wrote a best practices document articulating the intent and service level envisioned for the RRU embedded librarian service. The document defined embedded librarians as "integrated in an online course for a specified period of time, providing library instruction at point-of-need" (p. 2). It opened with a brief literature review highlighting the potential benefits of such a service to learner outcomes and was then divided into sections relevant to faculty, instructional designers, and librarians. It explained that the service was intended for research methods courses with literature review requirements, that each librarian would embed in not more than one course at a time for not more than five work days per course, that embedding would be scheduled to overlap with the earlier stages of literature search portions of the courses, and that each course would have a separate discussion forum for the librarian. Armed with this best practices document, Mussell met with academic department heads and instructional designers to market the service. Having the intent of the service laid out in print, with different sections for different stakeholders, was highly effective in marketing the service and it had a positive effect on encouraging faculty to invite the librarians into their courses.

Along with this best practices document, Mussell also wrote a series of sample forum posts for the other librarians to customize to suit the courses in which they were embedded. These posts focused on topics central to information literacy such as brainstorming topics, collecting search terms, understanding the relative merits of the various research tools available, constructing sophisticated searches and evaluating sources. All customized posts were saved to a shared directory for other librarians to review, borrow and add to in subsequent courses.

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Many of the elements of our approach align with best practices outlined above by York and Vance (2009) as well as those by Chesnut (2010). For example all of the librarians have permissions in Moodle that enable us to post content to discussion forums and respond to questions. By sharing and customizing posts from earlier course offerings we are able to engage directly and personally in each instance and build up a shared repository of text. We keep the service sustainable by focusing on research-heavy courses, sharing the embedded courses equitably between librarians, by restricting involvement to one course per librarian at a time, limiting the length of engagement in a course to no more than five days, and by phasing out in-class instruction sessions historically delivered during the second residency.

Our engagement with students is asynchronous and almost entirely text-based. While we do sometimes point to pre-existing animated tutorials created for general audiences, we do not lead synchronous webinars as we feel this approach works against the time shifted appeal of online learning. We consider our approach of repurposing pre-prepared posts across courses as providing a good return on our investment of time. Ahead of his or her five days of course involvement, a librarian can take time to create or tailor posts to match the assignment. During the week when the librarian is embedded, he or she can upload their post of the day and focus on reacting to questions that arise.

Having become comfortable with our approach over the past two years, it was time to investigate the efficacy of the service and consider how it might be improved. While we felt confident that we were doing useful work, this was based only on anecdotal feedback from students and faculty.

Research Methodology

Earlier studies evaluating the efforts of embedded librarians in online classes, and the perceptions of students in those classes, employed various combinations of online student surveys and faculty/librarian interviews (Figa, Bone, & Macpherson, 2009), online surveys of both students and faculty combined with informal discussions with librarians (Tumbleson & Burke, 2010), or online student surveys combined with discussion forum feedback and faculty interviews (Kumar et al., 2010). We chose to use a combination of online surveys and analysis of usage statistics gathered from the university's course management system (CMS). Because embedded librarians at Royal Roads work with students and faculty online, it made sense that the survey tool should be administered in that same environment. Conducting in-person interviews or leading focus groups were not feasible options. We selected FluidSurveys as our online survey tool. Since we wanted to survey faculty as well as students, two surveys were submitted to, and approved by, the university's Research Ethics Board. To try to get the best possible response rates, both surveys were designed to take less than 10 minutes to complete. To entice students to participate, we offered participants the option to enter a draw to win a \$200 gift card. Both surveys were open for a six-month period from March 2013 through to the end of September 2013.

The student survey, listed in Appendix A, was comprised of four demographic questions and seven questions on the information literacy instruction they received. The demographic questions identified the program students were enrolled in, their age range, and their gender. To preserve the anonymity of students wishing to be entered for the prize draw, the end of the student survey included a link to a separate single-question survey that asked for the student's name and email address. The seven questions about information literacy instruction asked students to describe their experience of having a librarian forum in their course. They were asked to identify areas where they felt their information literacy skills had improved, whether or not they felt the forum's content improved their ability to locate and select better quality material for their assignments, and ultimately if the librarians' engagement improved the quality of the course offering. To understand the size of our audience in each embedded course, and estimate how many students explored our embedded service, we also generated class participation reports in Moodle.

The faculty survey, listed in Appendix B, was comprised of three demographic questions and nine that focused on whether or not service expectations were met, whether the faculty member felt the resources students used for their assignments improved, and whether or not they would support having an embedded librarian in future offerings of their course. The overall goal was to determine whether or not faculty valued

this method of online support and collaboration with librarians, if they thought it was effective in improving student outcomes, and if they deemed it necessary on an ongoing basis.

In an effort to obtain detailed responses from students, the link to their survey was posted in the embedded librarian discussion forum very shortly after the librarian's final post, when experiences around what they learned and the utility of the service were still fresh in their minds. Since the faculty survey included questions around the quality of the resources students found, a link to the faculty survey was emailed two weeks after the librarian's final post, to allow them time to review the assignments before commenting on aspects of quality.

Results and Discussion

Student Perceptions

The student survey response rate was lower than we had hoped it would be. Of the 382 students who participated in one of the 11 courses with an embedded librarian, 47 completed the survey for a response rate of 12%. We were aware that a low response rate was possible given that previous studies in embedded librarianship reported similar results (Figa et al., 2009; Kumar et al., 2010; Tumbleson & Burke, 2010), but we had hoped that offering a sizable prize would have improved participation. While our results cannot therefore be considered statistically significant, the data gathered has nonetheless helped gauge the utility of this service for students and validated our efforts of collaborating with faculty.

We collected feedback from students in each of the six programs¹ with courses where a librarian was embedded. Figure 1 outlines the proportion of student respondents from each of the participating programs, all of which were at the graduate level. With regards to the demographics of the respondents, 30 (64%) were female and 17 (36%) were male, which roughly maps to the University's gender split of 57% female and 43% male (British Columbia. Ministry of Advanced Education, 2013, p. 50). Similarly, as our institution serves primarily graduate level students, and given that each course we embedded in was at the graduate level, it was not surprising to see that the age demographics of our survey reflected our University's older population (2013, p. 24). In terms of age, 7 (15%) were 17-29 years old, 24 (51%) were 30-45 years old, 15 (32%) were 46-60 years old, and 1 (2%) was over 60 years old.

¹ While Figure 1 shows seven programs, librarians were actually only embedded in six. The MA Interdisciplinary Studies program is a flexible program that does not have its own research methods course. Students in this program still identify as MA Interdisciplinary Studies students, but enrol in research methods courses offered through other programs.

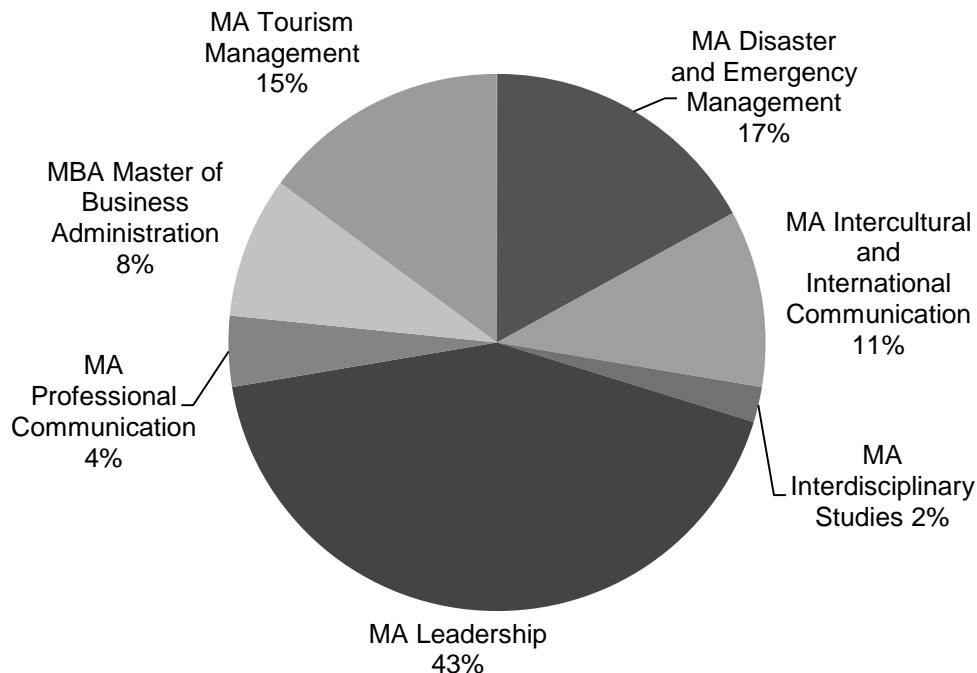


Figure 1. Percentage of student responses by program of study.

In response to whether or not this was their first time having a librarian embedded in their online course, 96% (45/47) of students said “yes”, while 4% (2/47) said “no”. This result was expected as the instruction librarian who coordinates the embedded service had strategically marketed the service to research-oriented courses. While some programs chose to have librarians embedded in more than one course during the period of this study, it was not expected that many participants would have prior knowledge or experience with embedded librarians.

When asked if having a librarian in their course improved their ability to research effectively, 93% (43/47) of respondents said “yes”, while 7% (3/47) said “no”. Explanations of how the embedded librarian assisted were gathered from an open-ended, follow-up question that asked students to elaborate. Responses were analyzed and grouped into broad categories, both positive and negative. The most common positive responses involved the service providing a good review and reminder of search strategies, as well as practical tips that could be immediately employed. Two sample comments were: “Definitely having a librarian imbedded [sic] in our course was a great refresher of the tools that are available to me as an on line [sic] learner” and “Tips on evaluating article credibility & refining searches was most helpful – admittedly, were it not for having this info/these tips imbedded [sic] directly in the course, I would not have made the effort (lack of time) to learn about searches, etc.” Other positive comments highlighted how the librarian helped to enable a deeper learning of library research concepts with comments such as: “My cohort asked the same questions I had and some I hadn’t thought of ‘yet’. The shared learning was efficient and informed my learning at a deeper level” and, “The comments that have been posted with regard to specific search techniques have been very helpful...these are key skills and the cohort gains tremendous value from direct participation.”

The details of students’ perceived development in research ability are further highlighted in Tables 1 and 2, which show responses to a couple of multi-part questions that asked students to rate their level of learning. In all areas, the majority of respondents reported that their knowledge was either “improved” or “greatly improved”, which supported our assertion that the time librarians dedicated to being present in the course was well spent.

In Table 1, which explored students’ more conceptual understanding of literature search practices, the two categories where most respondents felt the “Ask a Librarian” forum “greatly improved” their knowledge were “figuring out which are the best search tools for your topic” 41% (19/46), and “figuring out how to

narrow your search results” 46% (21/46). With so many search tools available (Google Scholar, Summon, publisher and aggregator databases and more) it can be confusing for students to know where to start. Having a librarian provide information on the different types of search tools was better received and resulted in more forum discussion than other topics. Similarly, in this information age where people regularly struggle with information overload, or the “overwhelming flood” as one student succinctly put it, it makes sense that advice on narrowing searches is well received. It should be little surprise that these categories got more attention than categories such as “understanding the various ways information is created and disseminated” and “understanding the various ebook options available”, which were seen as less critical, and ultimately garnered less discussion.

Table 1

The librarian in your course posted several tips to assist you with your assignment. Please rate the areas you feel you improved your knowledge in as a result of forum discussion:

	Did not improve	Marginally improved	Improved	Greatly improved	Total responses
Evaluating what constitutes a credible source	6 (13%)	9 (20%)	26 (57%)	5(11%)	46
Understanding the difference between “popular” and “scholarly/peer-reviewed” material	6 (13%)	11 (24%)	22 (48%)	7 (15%)	46
Figuring out which are the best search tools to use for your topic	3 (7%)	6 (13%)	18 (39%)	19 (41%)	46
Understanding the various ways information (books, articles, reports, etc.) is created and disseminated	9 (20%)	11 (24%)	22 (48%)	4 (9%)	46
Figuring out how to narrow your search results	1 (2%)	6 (13%)	18 (39%)	21 (46%)	46
Figuring out how to broaden your search results	1 (2%)	9 (20%)	21 (46%)	15 (33%)	46
Locating the full text of a document for which you have found a citation	9 (20%)	11 (24%)	20 (43%)	6 (13%)	46
Understanding the various ebook options available	10 (22%)	15 (33%)	16 (35%)	5 (11%)	46
Understanding the various citation manager (e.g. RefWorks) options available	12 (26%)	10 (22%)	17 (37%)	7 (15%)	46

Note. Bolded text highlights the column with the most responses.

In Table 2, which explored students’ more practical search skills, no single area was deemed to have been “greatly improved” for a majority of respondents. There were a substantial number of categories, though, where a majority of students felt they had “improved”. The category where the most respondents indicated improvement was “identify appropriate keywords or phrases when you search for a topic” 48% (22/46). This was followed closely by “identify alternate terminology” 43% (20/46) and “construct a search using Boolean operators” 44% (20/45). One key component of our embedded librarian service is providing students with a sample research question that we use to demonstrate how to isolate the main concepts for keywords, brainstorm synonyms, and construct a search. We then ask them to attempt this same strategy on their own research questions and test out their searches. By providing a relatively simple, straightforward plan to initiate the literature searches for their own questions, the feedback received is often very positive as the following comment illustrates: “This was the most helpful post to me: Identifying your search terms and constructing a search.” It also likely explains why there is higher uptake in these three specific knowledge areas over others.

Table 2

The librarian in your course posted several search tips identifying various search strategies. Please rate the areas you felt you improved your knowledge in as a result of forum discussion:

	Did not improve	Marginally improved	Improved	Greatly improved	Total responses
Identify appropriate keywords or phrases when you search for a topic	2 (4%)	9 (20%)	22 (48%)	13 (28%)	46
Identify alternate terminology, such as synonyms and broader or narrower terms, for the information needed	7 (15%)	9 (20%)	20 (43%)	10 (22%)	46
Construct a search using Boolean operators (e.g. AND, OR, NOT)	5 (11%)	11 (24%)	20 (44%)	9 (20%)	45
Use a particular search field (e.g. title, author) when searching for specific information	10 (22%)	11 (24%)	18 (39%)	7 (15%)	46
Construct a search to retrieve documents containing an exact phrase (e.g. "British Columbia")	12 (26%)	9 (20%)	18 (39%)	7 (15%)	46
Use truncation symbols (e.g. *) to find variants of search words (e.g. teach, teacher, teaching) when searching a database	11 (24%)	13 (28%)	12 (26%)	10 (22%)	46
When subject terms relevant to a topic are shown in a database, you can search for additional information using those subject terms	6 (13%)	15 (33%)	16 (35%)	9 (20%)	46

Note. Bolded text highlights the column with the most responses.

The only negative student feedback had to do with the timing of the embedded librarian service. The most common timing issue involved not everyone in a course being simultaneously ready to embark on their literature search. While we feel confident the "Ask a Librarian" forum was appropriately placed in the unit, based on our consultation with instructors and our review of each course's outlines and timetables, some students were still a week or two behind. This lag is unsurprising given that most Royal Roads students opt for online education because they are working professionals with other commitments beyond school and need the scheduling flexibility that online education provides. The other timing issue involved having a librarian embed at a time that clashed with preparation for a major exam in another course, so students felt torn between participating in the "Ask a Librarian" forum or studying for their exam.

Timing issues aside, when we asked students to comment on whether or not having a librarian in their online course assisted them in finding better resources for their assignment, 87% (40/46) said "yes". Furthermore, when we asked if having a librarian embedded in the online course increased the quality of the course offering, 96% (44/46) said "yes".

Building on the data collected through the student survey, we also gathered data on forum activity by using the "Participation report" in the Moodle Reports tool. Since not enough student surveys were completed to provide statistically significant results, these reports provided valuable insight on forum usage for all 382 students in all 11 courses, not just the ones who filled out the survey. The data, listed in Figure 2, showed that in most courses the student participation rate in the "Ask-a-Librarian" discussion forum was over 50%. However, one thing we did not initially consider, but that negatively skewed our forum participation data, is the fact that students were subscribed to the library forum in what Moodle calls "forced subscription"

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mode, meaning they automatically received emails of all posts to that forum. Forced subscription negates the need for students to actually go into to the forum to read the content. We therefore believe that the number of students who read and made use of the discussion forum is in fact higher than the Moodle statistics show. For example, while Figure 2 correctly reports that there was no forum activity in TRMN 503, we know that the information provided in the forum was viewed by at least one person because the librarian embedded in that course reported an off-forum email conversation with a student who thanked the librarian for all her help. Likewise, all other librarians who embedded in courses also reported having “off-list” email and phone conversations with students who, for whatever reason, be it privacy or personal preference, chose to contact the embedded librarian directly for help, thereby circumventing the forum all together and preventing these discussions from getting tabulated by the CMS software.

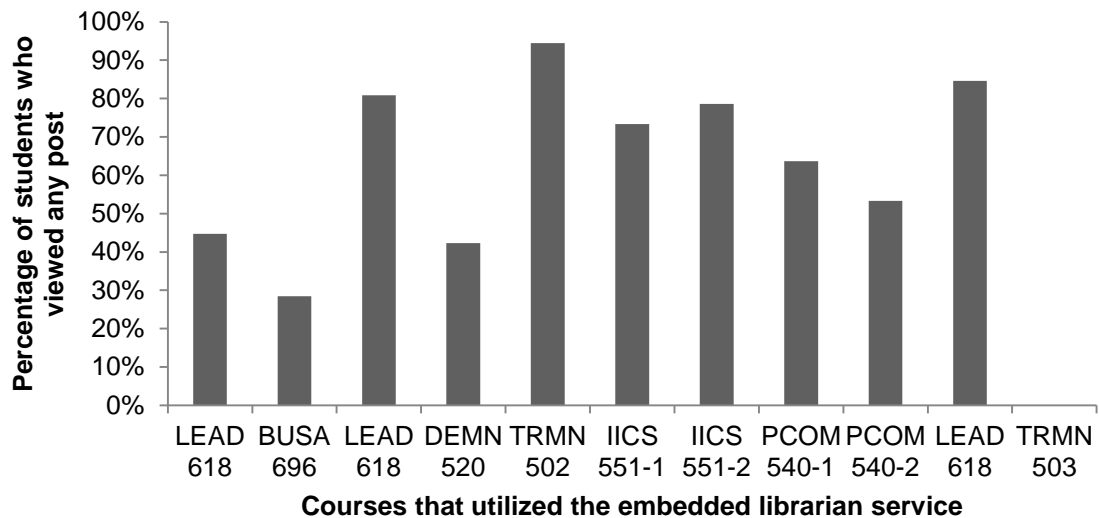


Figure 2. Percentage of students who either viewed or posted to the “Ask a Librarian” forum.

We were unable to meaningfully compare this participation rate to forum use in other course forums because each course was uniquely structured and had a distinct collection of voluntary and mandatory forums serving different purposes and resulting in uneven motivations for forum participation across courses. Currently, participation in the “Ask-a-Librarian” forum is not mandatory, nor does it have any bearing on a student’s final grade. We think that the participation rates in our forums were acceptable given its supplementary nature, the likelihood that participation was in fact higher than reported, and considering the previous discussion around the ability of students to be fully present in an online course with conflicting internal and external timing factors.

Librarians embarking on their own formal survey of their embedded librarian service should keep the influence of ‘forced subscription’ in mind when considering student participation. Depending on the CMS their institution uses and how it works, it may be limited in the kind of usage data it can provide. As one study on mining log data in web-based management systems points out, “Although LMSs can hold large volumes of rich data, they provide a limited set of reporting features and they don’t support any data mining techniques” (Psaromiligkos, Orfanidou, Kytagiias, & Zafiri, 2009, p. 187). One thing that might alleviate this discrepancy in future studies is if CMS software could track whether or not forum generated emails are viewed. Perhaps future studies might look at using some sort of independent data mining software to try to elicit more information from CMSs.

Faculty Perceptions

Twelve faculty from the 11 courses that included the embedded librarian service were polled. Five partook in the survey for a response rate of 42%. Part of the reason for the relatively low response rate was that two of the faculty taught more than one instance of the same course and only filled out the survey once.

For 60% (3/5) of faculty, this was the first time they had had a librarian participate in their online courses. Regardless, responses to survey questions were very similar. When asked to describe their initial expectations of the service, all faculty reported that they expected the librarian to assist their students by providing timely information around search strategies and to assist in developing research skills. Asked simply if the librarian met expectations, responses were unanimous with 100% (5/5) saying they had. Invited to explain what the librarian had or had not done to meet expectations, the uniformly positive comments centred on the librarians' ability to take the initiative in getting students engaged, pro-actively posting helpful information, being approachable in all communications, and providing individual coaching. The value of this service to faculty was reaffirmed by the responses to the question, "Please rate how useful you felt it was to have a librarian in your course" to which 80% (4/5) said "essential", 20% (1/5), said "helpful", and no respondents said "marginally useful", or "not useful". With this predominantly positive feedback, it is no surprise that when asked, "Would you invite a librarian into future offerings of your course?" the unified response was "yes" (100% or 5/5).

As with the student survey, the one negative thread in the feedback had to do with timing. As mentioned previously, the Royal Roads embedding model limits librarians to embedding for no more than five days in order to keep embedding requests sustainable with the small librarian complement. When asked whether the length of time was adequate, 60% (3/5) said "yes". When invited to elaborate, one faculty member jokingly responded that there was a preference for a librarian to be in the course all the time but then offered the more serious and specific response that having the librarian available for 7-10 days would be preferable. This request for more time was echoed when faculty were asked "What elements of the embedded librarian service would you change or add?" While most respondents said nothing needed to be changed, one respondent reiterated the request for extra days, while another suggested having the embedded librarian embed more than once during a single course offering.

Timing concerns aside, faculty unanimously agreed that having librarian support directly in their course not only improved the quality of the course offering, it also helped students find better resources for their assignment as a result.

Conclusion

In this study we set out to discover whether or not students and faculty were amazed, appreciative or ambivalent about our embedded librarian service. This small window into the perspectives of both students and faculty confirm that students certainly engage with the service and that survey respondents are clearly appreciative of having librarians embedded in their courses. While our data cannot be generalized to all online students, the thoughtful comments we collected will certainly help to show administrators, not only in the library but also throughout campus, the value of an embedded librarian service.

The only aspect of the service which survey respondents thought needed improving was the timing of our involvement. While we are confident that our initial engagements in given courses have been well coordinated, both students and faculty expressed a desire that we remain engaged for longer. One instructor recommended that we remain in courses for 7 – 10 days rather than five. We have noted more than once that one of the virtues of online education is the scheduling flexibility it gives students to do their work. Understanding that the student's schedules might not align with the course schedule, it is worth exploring the workload implications of remaining embedded for an extra work week. Having posted our prepared posts and responded to immediate questions, how much more demanding would it be to remain quietly subscribed to a given course for another five days to give the trailing students the benefit of our support?

Beyond the issue of how long librarians are embedded in a given course, we have gathered other ideas for improving the service. Perhaps the most valuable of these has been meeting the need to cater to multiple learning styles. Our current approach is almost entirely text based and may be made more effective by adding learning objects that cater to different kinds of learners. Zapalska and Brozik (2007) provided a useful and concise starting place for this thinking, outlining different learning styles and effective methods for reaching a broader population of students. In line with advice from Chesnut et al. (2010), discussed in our literature review, we could better develop our shared repository of audio-visual learning objects.

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The other noteworthy area for possible improvement is exploring how we might improve participation in our discussion forums. The ratio of students who post comments or questions has been uneven across courses since we began our embedding program. One key way we try to promote participation is to ensure that faculty members introduce the embedded librarian and explain why the librarian is staffing his or her “Ask a Librarian” forum and what students can expect from the service. Such introductions highlight the real person behind the service and give our work better profile. It seems that we also need to dig deeper and think more critically about how best to draw students into discussions. Andresen (2009) provided a useful starting place for this point of inquiry, outlining the importance of dialogue - be it online or in person - as a pivotal element of deep learning and then reviewing literature on how to encourage discussion among class members.

While there is room for innovation and change in the service model we have developed, the consensus is that our efforts are valued by students and faculty alike and that we are achieving our goal of improving students’ understanding of how to research effectively and fulfilling the teaching and learning course outcomes. This examination of our approach has given us useful direction on how to improve.

Academic libraries, large and small, are challenged to maintain service quality in the face of diminishing resources. While we created our embedded librarian service model to serve the needs of our library, this study shows that the model is effective. We demonstrated that it is possible for libraries with a small staff compliment to sustain an embedded librarian service, provided they outline clear limits to stakeholders around service parameters. Given that the model works in our small academic library, we expect that it could also be used in larger institutions. We hope that by sharing the model outlined in our best practices guide, other libraries might gain strategies for instituting a manageable embedded librarian service that is scalable to their respective needs.

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Appendix A

Student version

Survey about librarian participation in courses

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Welcome!

I am Jessica Mussell, RRU Instruction and Public Services Librarian. My four RRU librarian colleagues (Karen Charlebois, Liz Hansen, Laura Hébert and Will Meredith) and I are conducting this survey. The results from this survey will be used to compile a paper and presentation called Perceptions of librarians embedded in online courses, and also used to improve the library's online reference and instruction services for all students. Our credentials with Royal Roads University can be established by telephoning Roberta Mason, Associate Vice President at Royal Roads University, 250.391.2600 ext: 4432.

The primary research will consist of the data from this survey. The survey will take about 10 minutes to complete. You will be asked to share your opinions of having a librarian participate in your class. You can submit your name and contact information at the end of the survey to be entered to win a \$200 Future Shop gift card. This personal information will not be used to identify your responses and submitting this information is entirely optional.

The research findings will be shared with RRU administration and will form the basis of a future presentation and/or academic paper.

The information you provide will be summarized, in anonymous format, in the body of the final report. At no time will any specific comment be attributed to any individual. All documentation will be kept strictly confidential. In the event that your survey response is processed and stored in the United States, you are advised that its governments, courts, or law enforcement and regulatory agencies may be able to obtain disclosure of the data through the laws of the United States.

You are not compelled to participate in this research project. It will have no effect on your grades and standing. If you do choose to participate, you are free to withdraw at any time without prejudice. Similarly, if you choose not to participate in this research project, this information will also be maintained in confidence.

Your completion of this survey will constitute your informed consent.

Tell us a little about yourself:

1. What program are you in?

- Doctorate in Social Sciences
- MA Conflict Analysis and Management
- MA Disaster and Emergency Management
- MA Educational Leadership and Management
- MA Environmental Education and Communication
- MA Environmental Practice
- MA or MSc in Environmental Management
- Master of Global Management
- MA Human Security and Peacebuilding
- MA Intercultural and International Communication
- MA Interdisciplinary Studies
- MA Leadership (including Health specialization)
- MA Learning and Technology
- MA Professional Communication
- MBA Master of Business Administration
- MA Tourism Management
- BA Professional Communication
- BA Environmental Practice
- BSc Environmental Practice

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- BA International Hotel Management
- BA Global Tourism Management
- BA Justice Studies
- Bachelor of Commerce - Entrepreneurial Management
- BSc Environmental Management
- BSc Environmental Science
- Bachelor of Business Administration in Sustainability and International Business

2. How old are you? Between:

- 17-29
- 30-45
- 46-60
- over 60

3. Are you:

Male Female Other

Tell us about your experience with having a librarian forum available in your course:

4. Is this the first time you had a librarian participating in your online course?

- Yes
- No

If no, in which previous online course did a librarian participate?

TEXT BOX

5. Did having a librarian in this online course improve your ability to research effectively?

- Yes
- No

Please elaborate: TEXT BOX

Tell us about what you learned:

6. The librarian in your course posted several tips to assist you with your assignment. Please rate the areas you feel you improved your knowledge in as a result of forum discussion.

	Did not improve	Marginally improved	Improved	Greatly improved
Evaluating what constitutes a credible source				
Understanding the difference between "popular" and "scholarly/peer-reviewed" material				
Figuring out which are the best search tools to use for your topic				
Understanding the various ways information (books, articles, reports, etc.)				

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is created and disseminated				
Figuring out how to broaden your search results				
Locating the fulltext of a document for which you have found a citation				
Understanding the various ebook options available				
Understanding the various citation manager (e.g. RefWorks) options available				

7. The librarian in your course posted several search tips identifying various search strategies. Please rate the areas you felt you improved your knowledge in as a result of forum discussion.

	Did not improve	Marginally improved	Improved	Greatly improved
Identify appropriate keywords or phrases when you search for a topic				
Identify alternate terminology, such as synonyms and broader or narrower terms, for the information needed				
Construct a search using Boolean operators (e.g. AND, OR, NOT)				
Use a particular search field (e.g. title, author) when searching for specific information				
Construct a search to retrieve documents containing an exact phrase (e.g. "British Columbia")				
Use truncation symbols (e.g. *) to find variants of search words (e.g. teach, teacher, teaching) when searching in a				

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database				
When subject terms relevant to a topic are shown in a database, you can search for additional information using those subject terms				

Reflection questions:

8. Do you think that you found better resources for your assignment as a result of having a librarian in your course?

- Yes
- No

Please elaborate: TEXT BOX

9. Do you think that having librarian support directly in your online course improved the quality of the course offering?

- Yes
- No

Please elaborate: TEXT BOX

10. Please rate how useful you felt it was to have a librarian in this online course (1=not useful; 2=marginally useful; 3=helpful; 4=essential; 5=don't know):

1 2 3 4 5

Enter to win a great prize!

11. To be entered to win a \$200 Future Shop gift certificate, please enter your name and email below. This information will not be used to personally identify your survey responses.

- Name
- Email

Thank you for taking our survey. Your responses will help us improve RRU Library's online reference and instruction services for all students!

Appendix B

Faculty version

Embedded Librarian survey

Welcome!

I am Jessica Mussell, RRU Instruction and Public Services Librarian. My four RRU librarian colleagues (Karen Charlebois, Liz Hansen, Laura Hébert and Will Meredith) and I are conducting this survey. The results from this survey will be used to compile a paper and presentation called Perceptions of librarians embedded in online courses, and also used to improve the library's online reference and instruction services for all students. Our credentials with Royal Roads University can be established by telephoning Roberta Mason, Associate Vice President at Royal Roads University, 250.391.2600 ext: 4432.

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The primary research will consist of the data from this survey. The survey will take about 10 minutes to complete. You will be asked to share your opinions of the embedded librarian service you experienced in your class.

The research findings will be shared with RRU administration and will form the basis of a future presentation and/or academic paper.

The information you provide will be summarized, in anonymous format, in the body of the final report. At no time will any specific comment be attributed to any individual. All documentation will be kept strictly confidential. In the event that your survey response is processed and stored in the United States, you are advised that its governments, courts, or law enforcement and regulatory agencies may be able to obtain disclosure of the data through the laws of the United States.

You are not compelled to participate in this research project. If you do choose to participate, you are free to withdraw at any time without prejudice. Similarly, if you choose not to participate in this research project, this information will also be maintained in confidence.

Your completion of this survey will constitute your informed consent.

Tell us a little about yourself:

1. What program do you teach in?

Doctorate in Social Sciences

- MA Conflict Analysis and Management
- MA Disaster and Emergency Management
- MA Educational Leadership and Management
- MA Environmental Education and Communication
- MA Environmental Practice
- MA or MSc in Environmental Management
- Master of Global Management
- MA Human Security and Peacebuilding
- MA Intercultural and International Communication
- MA Interdisciplinary Studies
- MA Leadership (including Health specialization)
- MA Learning and Technology
- MA Professional Communication
- MBA Master of Business Administration
- MA Tourism Management
- BA Professional Communication
- BA Environmental Practice
- BSc Environmental Practice
- BA International Hotel Management
- BA Global Tourism Management
- BA Justice Studies
- Bachelor of Commerce - Entrepreneurial Management
- BSc Environmental Management
- BSc Environmental Science
- Bachelor of Business Administration in Sustainability and International Business

2. How old are you? Between:

- 17-29
- 30-45
- 46-60
- over 60

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3. Are you:
Male Female Other

Tell us about your experience with having a librarian forum available in your course:

4. Is this the first time you had a librarian participating in your onlinen course?

- Yes
- No

If no, which previous online course did a librarian participate in?

TEXT BOX

5. What did you expect from the embedded librarian service prior to starting?

TEXT BOX

6. Did the experience meet your expectations?

- Yes
- No

In what ways?

TEXT BOX

7. Was the length of time the librarian was embedded in your course adequate?

- Yes
- No

Please elaborate:

TEXT BOX

8. What elements of the embedded librarian service would you change or add?

TEXT BOX

9. Do you perceive that students found better resources for their assignment as a result of having a librarian in their course?

- Yes
- No

Please elaborate:

TEXT BOX

10. Do you think that having librarian support directly in your course improved the quality of the course offering?

- Yes
- No

Please elaborate:

TEXT BOX

11. Please rate how useful you felt it was to have a librarian in your course (1=not useful; 2= marginally useful; 3=helpful; 4=essential; 5=don't know):

1 2 3 4 5

12. Would you invite a librarian into future offerings of your course?

- Yes

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- No

Please elaborate:
TEXT BOX

Thank you for taking our survey. Your responses will help us improve RRU Library's online reference and instructional services for all students.