Librarian Involvement in a Family Medicine Clerkship Patient Education Project: A Case Report

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Introduction

General competency training has been an official component of graduate medical education since 1999, when a set of six competencies, including interpersonal skills and communication, were developed to encourage good educational outcomes (in contrast to imposing strict requirements) (1). At the University of Minnesota (UMN), the School of Medicine implemented a similar set of competencies in 2002 (2). Since that time, UMN medical students have been expected to be able to demonstrate skills within these competencies before entering their residencies. At UMN, communication skills fall under the clinical competency set (3), where the patient education communication skill in particular has been of interest to the health sciences librarians at the UMN Bio-Medical Library.

Several examples of teaching patient education skills to medical students through various exercises have been found in the literature (4-7). However, none described librarian involvement. Looking outside of strict medical education for such involvement, an example was found of a health literacy/patient education assignment for an undergraduate health informatics class (students were described as 1/3 nursing and 2/3 from other health and social sciences), written by a librarian who was directly involved (8). Another study described and pilot-tested a librarian-developed health literacy curriculum for providers to address their patient education skills in practice (the curriculum was found to have a positive impact on practitioner skills) (9). Although health literacy has been an area of focus for health sciences librarians for some time (10), librarians have not been documented as involved in teaching health literacy as a component of patient education within medical schools. However, as a patient's health literacy skills affect the ability of a clinician to provide appropriate patient education (11), it is clear that health science librarians' knowledge of and expertise with health literacy could be an asset in student education.

The UMN Bio-Med librarians have been presented with an opportunity to become a part of this aspect of medical student education. Since 2007, students in the Primary Care Clerkship (replaced in April, 2009 by the Family Practice Clerkship) have been creating appropriate language “Patient Education Tools,” or PETs, with instruction from UMN’s health science librarians. These PETs are archived online in the UMN’s institutional repository (UMN Digital Conservancy, or UDC), where they are indexed by Google and made accessible to anyone with an Internet connection. The Bio-Med librarians’ involvement throughout the process of creation, evaluation, and continued use (via the UDC) of the PETs has created an opportunity to undertake a case report/evaluation. Although this particular case draws upon librarian expertise in health literacy, it seeks to provide a model for other health sciences librarians thinking about ways to get involved with their institutions' competency-based training. Once

an area has been identified where educational competencies and librarian expertise overlap, the type of project outlined below may provide an idea of the role librarians can play. Indeed, competency-based training has been discussed in several fields outside of medicine where librarians may find a place, such as information literacy in public health (12) or public/community engagement in the sciences (13, 14).

Background and History

The University of Minnesota currently has 67,364 students enrolled, according to its website (15). The Medical School, part of UMN's Academic Health Center (AHC), has 920 medical students and more than 800 residents and fellows (the AHC itself currently has more than 6,200 students enrolled) and trains 55% of Minnesota's physicians (16,17). These are significant numbers, and they represent only part of those served under the UMN's Bio-Medical Library's mission

> to enhance the teaching, research, and service activities of the University of Minnesota and to support the University of Minnesota Academic Health Center in its quest to improve health, by facilitating timely access to information needed by library clients on campus, throughout Minnesota, and nationwide (18).

Each AHC school (including the Medical School as well as public health, dentistry, etc.) has its own librarian liaison from the Bio-Medical Library. These liaisons communicate and work with students and faculty within each school, providing training and other value-added services. The Bio-Medical Library staff also includes an outreach librarian, whose primary responsibility is to extend library services to unaffiliated users, including health care providers and the general public. Outreach efforts focus on the provision of quality consumer health information resources, as well as raising awareness of health literacy issues.

The Bio-Med Library's involvement with the Medical School's Family Medicine Clerkship evolved out of the Medical School's liaison librarians' participation in the Objective Structured Clinical Examination (OSCE) starting in July 2004. The OSCE was given to students completing the Primary Care Clerkship and consisted of 16 stations that simulated patient encounters with the use of volunteer "patients." Students went through the stations and were evaluated by a professional on their clinical and interpersonal skills. Librarians were asked to be involved with the OSCE because of their expertise and were invited to facilitate a station where students were asked to perform a literature search, identify a relevant article, and then evaluate it using evidence-based practice standards. This station was used to emphasize the role of evidence-based medicine in the clinical setting, and the professional who evaluated the students' work in this case was a Bio-Med librarian.

Librarian involvement with the formal coursework of the Primary Care Clerkship began in 2007, as the OSCE involvement was phased out. During the Primary Care Clerkship students were expected to complete an evidence-based medicine (EBM) project. First, they were asked to create an evidence-based practice question based on a patient encounter they had during the clerkship. Using that clinical question, they then formulated a clinical question in PICO ("patient/population-intervention-comparison-outcome") format and performed a literature search to locate an article that addresses that topic. The students' findings were presented in a Critically Appraised Topic (CAT), a standard EBM

education tool in which a chosen article is summarized and evaluated for its strength of recommendation and level of evidence in relation to the clinical question. The students were then expected to take the information from their CATs and develop a related Patient Education Tool (PET). The PET was created as an exercise in taking clinical information and translating it into plain language that is easily understood by patients.

Librarian involvement was linked directly to this evidence-based medicine project, evolving from a role similar to that of librarians teaching students about library resources and search strategies in a Family Medicine Clerkship at the New Jersey Medical School (19). A Bio-Med librarian (originally, the liaison librarian to the Medical School) met with students periodically throughout their 8-week rotation. During Week 2, the librarian gave a one-hour orientation to the resources and services offered by the Bio-Medical Library. In Week 5 the students would split into smaller groups, and with the assistance of additional liaison librarians, discuss their topics of choice and work through any problems they were encountering with their literature search process. During the final week of the rotation, the small groups would meet again with the course facilitator and the librarian to present and discuss their final CATs and PETs. Course facilitators would grade the students' CATs, while librarians would take responsibility for grading the PETs.

The course director of the Primary Care Clerkship recognized the effort the students were putting into their PETs, and was interested in finding a way to capture the students' work. The University of Minnesota Libraries had recently launched the University Digital Conservancy (UDC), an open access repository that provides long-term preservation and also makes the students' work harvestable by Google webcrawlers. The PETs began to be deposited in the UDC in 2008.

In the spring of 2009, administrators in the School of Medicine decided to restructure the format of the Primary Care Clerkship. The eight-week clerkship was split into two separate rotations: the Family Medicine Clerkship and a medical selective. The evidence-based medicine project was adapted and condensed to fit into the new four-week Family Medicine Clerkship. The students now meet with a course facilitator and the outreach and medical school librarians during Week 2 of the clerkship, and are expected to have their question formulated. While the majority of the time spent with the librarian during Week 2 is devoted to searching for a relevant article, there is also now time set aside for the outreach librarian to introduce the students to the concept of health literacy and to go over requirements for the PET as well as the CAT. During Week 4, the students present their CATs and PETs to their fellow students, the course directors, and the librarians. While the course directors have final authority on the EBM project grade, the librarians are responsible for evaluating and assigning grades (based on a 7 point scale) for the PET portion.

The Case Study: Methods

The methods employed for this project were both qualitative and quantitative and were designed to capture as much of the librarians' involvement in the entire clerkship process as possible. The process was framed by the requirements set for the students by the clerkship faculty—these requirements were also captured.

Quantitative data collection was designed to get a sense of the number of students impacted by the librarians' involvement from April 2009 through April 2010 (the period since the Family Medicine Clerkship began). In order to determine the total, the number of 4-week rotations and the number of students in each clerkship were counted using the online Moodle course management system (course information is delivered to the students through the Moodle platform, and there is a record of which students were registered for each rotation through Moodle). In addition, quantitative data was collected on the number of PETs uploaded to the UDC and the number of times PETs were downloaded. The PETs are divided into two collections that correspond to the course taken: the Family Medicine Clerkship Patient Education Handouts collection and the preceding Primary Care Clerkship Patient Education Handouts collection. Usage statistics can be viewed by any visitor to the UDC. Statistics are available on the collection level (the number of times anything in the collection was downloaded) and at the individual file level; for this project, only collection level statistics were gathered. The statistics are gathered on a monthly basis, and are displayed in one-month time intervals.

The qualitative data collection consisted of the librarians' observations during the Week 2 and Week 4 sessions. Notes were taken when possible on students' topics, their PET experiences, and other notable events (such as changes in students' presentation methods). This aspect of data collection was informal and iterative; the librarians often discussed ways to improve once sessions were completed, and those improvements were instituted the next time. More formal qualitative data was collected in a short focus group meeting and e-mail follow-up with the clerkship medical faculty members in April 2010, in order to gather feedback on the librarians' roles and to determine whether the librarian and other faculty impressions of the clerkship were consistent. In addition, anonymous comments from the students from May 25th, 2009 through April 13th, 2010, collected as part of the course evaluation, were evaluated and narrowed down to those relevant to the library and the CAT/PET project.

Results

The PETs created in the Family Medicine Clerkship and its predecessor, the Primary Care Clerkship, are deposited into the UDC, which provides free, open access to materials. PETs that receive at least five out of the possible seven points are eligible for inclusion in the UDC. PETs that receive less than five points are not placed in the UDC. All students are encouraged to grant permission to allow their PET to be deposited into the UDC, but it is not mandatory. All students submitting their PETs for inclusion in the UDC must sign a required deposit agreement. The agreement states that their work is original, and that they grant the University the right to access, reproduce, and distribute the work in perpetuity. Once the students grant permission, Medical School and Bio-Medical Library staff members prepare and deposit the PETs into the UDC (Figure 1). Once in the UDC, the PETs are harvestable by Google webcrawlers, and can be found by the public in search results (Figure 2).

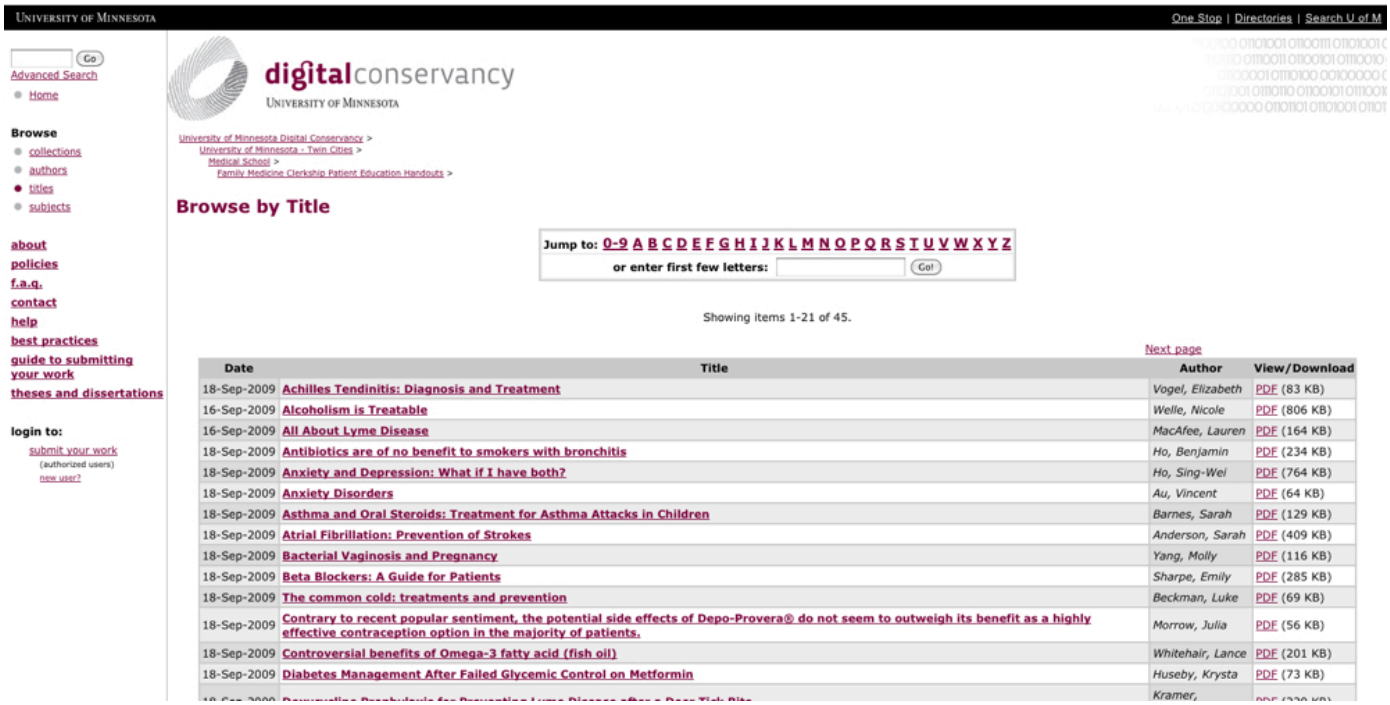

Figure 1 - PETs in the UDC

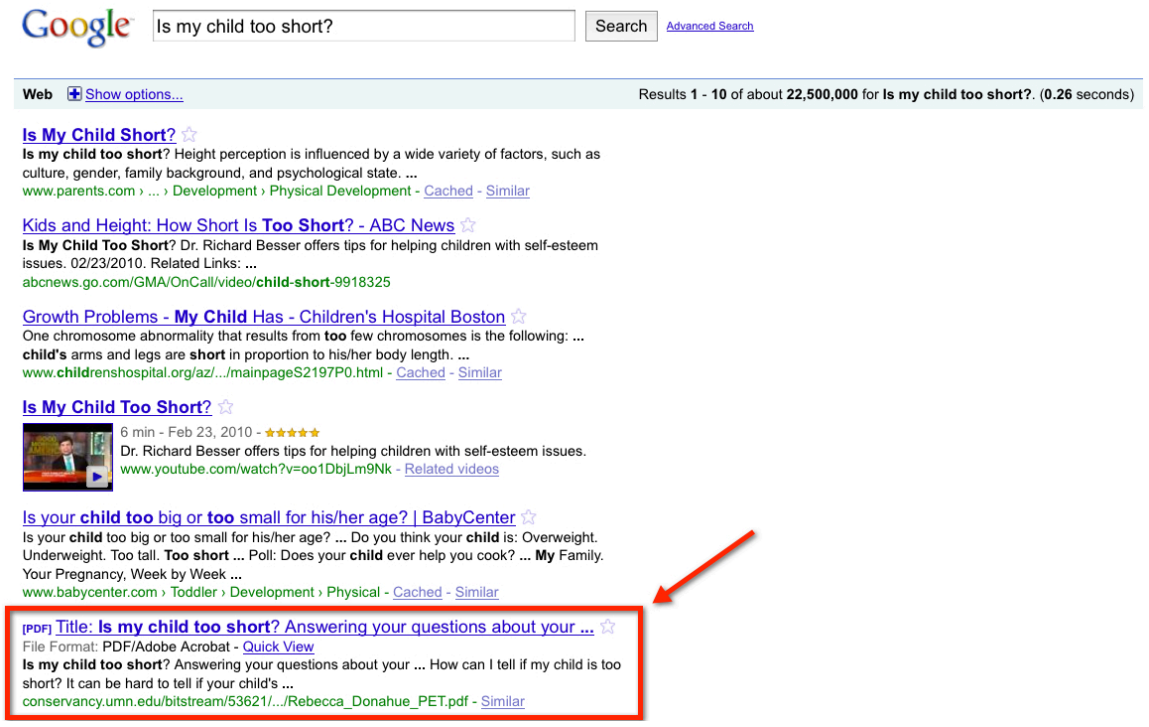

Figure 2 - Google Results

A total of 185 students completed the Family Medicine Clerkship from April 2009 through April 2010. Of those students, 184 chose to grant permission to allow their PET to be deposited into the UDC. Items

from the Family Medicine Clerkship were deposited in the UDC starting in September 2009. Due to workflow issues, only 45 of the 184 PETs produced by students in the Family Medicine Clerkship have been deposited into the UDC. Statistics show that there have been 550 downloads between September 2009 and March 2009.

Items in the Primary Care Clerkship collection were deposited in the UDC starting in January 2008. The Primary Care Clerkship collection contains 195 PETs, with 12,767 downloads recorded from January 2008 through March 2010. Although the Primary Care Clerkship has had a much higher number of downloads overall, this can be explained by the fact that Primary Care PETs are greater in number and have been available since January of 2008. The Family Medicine Clerkship has had a comparable rate of downloads when the download rate is viewed as the average number of downloads per PET per month (Figure 3).

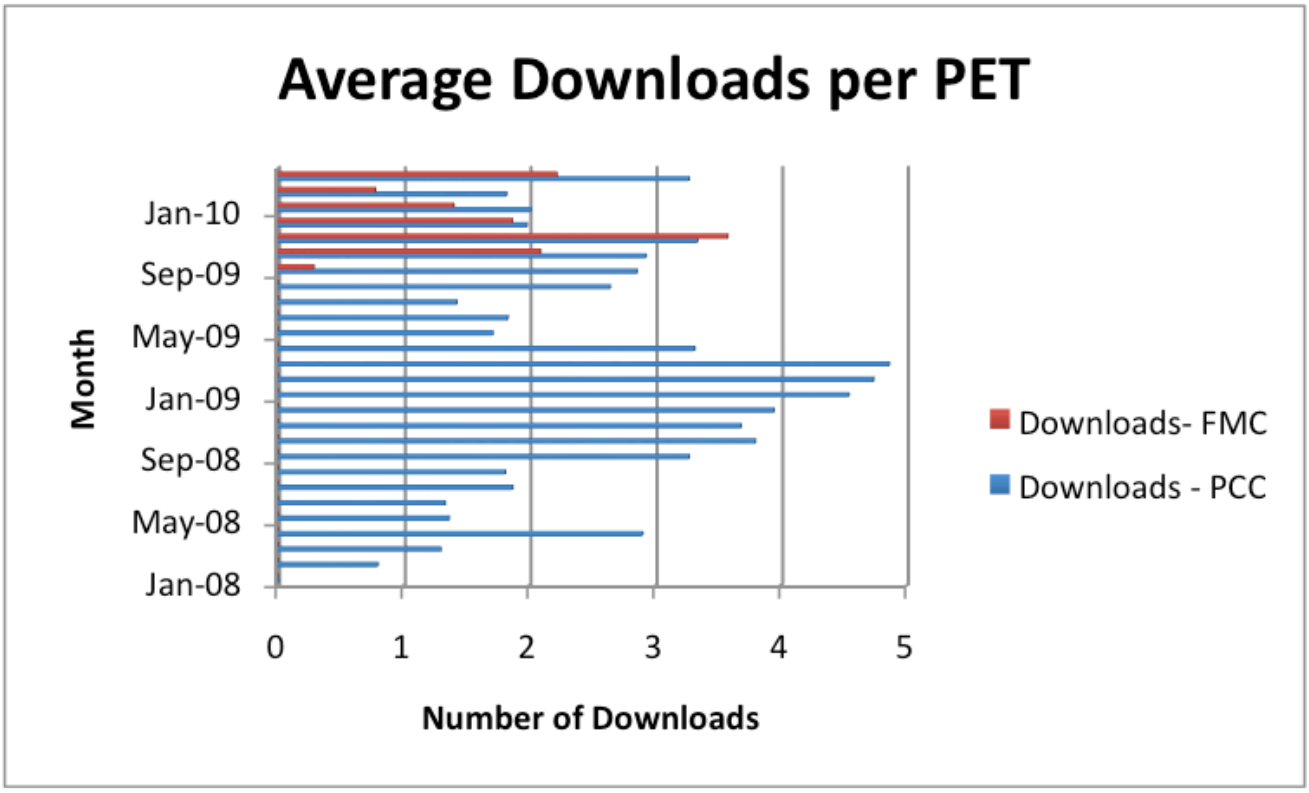

Figure 3 - PET Downloads/Month

The qualitative collection of librarian observations has resulted in numerous discussions amongst the librarians, leading to small changes in the way the librarian components of the clerkship are handled. For instance, after several PETs did not include the basic contact info that was required, the librarians made a focused effort in the next rotation to talk about the importance of including that information to the PET's authority and transparency. In addition, the notes collected from the rotations will be

compiled and used by the Bio-Medical librarians (along with this research) as documentation of the evolution of their involvement with the Family Medicine Clerkship.

The short focus group took place on April 14, 2009. Feedback from the two attending course directors centered around two topics: impressions of the quality of student work and perceptions regarding the librarians. The course directors agreed that when the EBM project began during the Primary Care clerkship, originally, students were struggling to find good evidence to use in their the CATs. Once the librarians began to help, the evidence began to improve. They also felt that more recently the students' work has stabilized. There are few CATs/PETs that are unsatisfactory, and while there have been changes to the actual program (from Primary Care to Family Medicine, from 8 weeks to 4, a change in the grading system for the PET), this has remained generally true. The PETs were perceived to get a little better with the grading change. The course directors also mentioned, on the topic of student work in general rather than on the quality, that the librarians had facilitated capturing the PETs in the UDC. On the topic of their perceptions of the librarians' involvement, the course directors were quoted as saying "It's been good having someone with expertise who can circulate during Week 2, so that everyone really can leave with a PDF in hand" and "there is a legitimacy to having you [the librarians] here." The last quote was further qualified as librarians are providing some outside confirmation that the clerkship and EBM project are important within the medical school curriculum. There was also some discussion at the focus group on whether the librarians' roles in the clerkship are unique, given other liaison roles in morning reports and other medical school courses. The librarians gave several reasons why the clerkship role is unique, but the reason that resonated the most with the course directors was the health literacy component of the clerkship; health literacy is not currently addressed by the librarians in any other role.

Anonymous comments from students who participated in the Family Medicine Clerkship were collected from May 25, 2009 through April 13, 2010. There were several categories of comments; the categories that applied to the sessions involving librarians were "general comments on Wednesday seminars," "comments on areas for improvement," and "comments on strengths [of the clerkship]." Of the 89 general comments, 12 (about 13.5%) were related to the library and the EBM project (i.e., the CAT, PET, and/or both). Of the areas for improvement, 23 out of 100 (23%) were about the library and/or the EBM project. Of the comments on strengths, 15 of 102 (around 14.7%) were specifically about the library/EBM project.

The student comments show a wide range of perspectives on the EBM project and library aspect of the Family Medicine Clerkship. General comments concerning the library session and EBM project ranged from a feeling that the CAT and PET projects were "busy work," to it being a "meaningful" and "worthwhile" experience. Many students felt that the library session was helpful, while others commented on how the structure of the session could be altered. Suggestions for improvement included shortening the length of the instructor-led demonstrations, improving the presentation and explanation of the project and its requirements, and increasing the amount of individual search time.

Conclusion

Summary of accomplishments

Overall, we feel librarian involvement in the Family Medicine Clerkship patient education project represents significant accomplishments on several levels. This model is a long-term integration into the curriculum of the medical school, which is the elusive ideal of the liaison librarian model. Significantly, librarians have been granted a seat at the table for several years to help shape the format of the clerkship. This inside look at the faculty and student experience in a course is hugely informative about the ways faculty and students use information. The fact that librarians are continually welcomed into this process is a great accomplishment, as it indicates that the medical school faculty members involved in the clerkship have confidence in and respect for the expertise librarians bring.

We have also observed successes in terms of student learning. According to faculty and librarian observation, the quality of the CATs and PETs is constantly improving. While we cannot state that there is a causal link to librarian involvement, these improved outcomes are likely a result of the constantly evolving structure of the clerkship, brought about by collaboration between faculty and librarians.

Another success is the recruitment of content for the UDC. The Family Medicine Clerkship has been a constant and reliable source of new material for the UDC, which benefits both the students (because their work is available in a repository) and the public (because they can make find and make use of the patient education materials creates in this course). It also benefits the library system as we attempt to expand and popularize the UDC. The Family Medicine Clerkship model of depositing PETs into the UDC is being considered in the Occupational Therapy program, which would be beneficial to OT students and the public in the same way.

Improvements and Lessons learned

The grading criteria were revised in July 2009, and the available points for the PET were expanded from 3 to 7. This was a great improvement that elevated the importance of the PET, as well as gave librarians greater flexibility in evaluating the PETs. The development of more explicit grading criteria also increased the confidence of librarians in their ability to accurately evaluate the assignments.

The timing, structure and format of the instruction session on finding evidence and creating patient education materials has changed quite a bit over the last several years. Based on student and faculty feedback, the model has evolved so that much of the week 2 session on finding evidence is hands-on, and students leave the session having found the article they will use for their CAT. The goal is always to make the most efficient use of very limited class time, and to offer the instruction at the best point for students.

Recommendations for Continuing Work

An important area for future study is to design a more structured way of evaluating the outcomes of librarian involvement, ideally in terms of improved student outcomes. Informal student and faculty feedback has indicated a perception of value of librarian involvement in the form of improved learning outcomes, but a structured research study would strengthen the evidence for the efficacy of this model.

The current course evaluation given to students at the end of the clerkship does not ask questions specifically about the PET project or librarian involvement, but instead asks about the course in general. Looking ahead, it may be beneficial to request that the evaluation is adjusted to encourage explicit feedback on the PET project and librarian involvement. This would ensure that we get the specific feedback needed to better understand the project from the perspective of the student. This, in turn, would allow us to systematically evaluate our efforts and to identify areas that need improvement or adjustment.

Success and Versatility of This Model

We feel this basic model could work in a number of different venues, far beyond just medical student education. It could be used in a wide variety of academic settings, or in any situation where a group needs to create a product and the process would be made more efficient with the help of a librarian's skill set. The key elements for success of this model are engagement with faculty, librarian integration into a specific assignment or project workflow, and a continuum of contact between the librarians and students.

An advantage of this model is the expectation that it will constantly evolve. The close relationship with the faculty allows the instructional approach to morph along the way if better ways of doing things are discovered. Flexibility is key.

In attempting to integrate into curriculum, it is tempting (and theoretically more strategic) to look at the curriculum as a whole and try to tackle involvement on a large scale. However, the approach of this model is to start small, by targeting a specific course and assignment. Once librarians have the opportunity to demonstrate that they bring a unique set of skills and expertise to the table and that maximum team efficiency and improved product outcomes can be achieved when librarians collaborate with subject experts as part of an interprofessional team, it is much more likely that they will be viewed as important contributors to the process, as was the case for the librarians in this case study.

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