

Embedded Peer Specialists: One Institution's Successful Strategy to Scale Information Literacy Services

*Danielle Salomon, Casey Shapiro, Reed Buck, Annie Pho, and Marc Levis-Fitzgerald**

This paper introduces the Embedded Peer Inquiry Specialist Program at the University of California Los Angeles (UCLA), a service that combines the academic context of embedded librarianship with the scalability of peer learning services. The UCLA Library introduced this program in 2015 as a way to expand information literacy services to a large undergraduate population. An ongoing campus collaboration between the Library, the Division of Undergraduate Education, and the Center for Educational Assessment is exploring the impact of the program on students and the feasibility of maintaining it over time. Initial analyses suggest the program has been an effective, sustainable, and scalable way for the UCLA Library to reach first-year students.

Introduction

Information literacy skills are critical to the development of today's college students, as they impact student learning and are the basis for lifelong learning.¹ As such, creating programs to improve and teach information literacy skills is a goal of many college and research libraries. Academic libraries face challenges, however, sustaining high-quality, large-scale information literacy programs due to staff and budget constraints and growing student populations.

Going beyond the traditional one-shot library instruction model, librarians have experimented with a variety of models to provide research assistance, like embedded librarianship. Numerous case studies demonstrate the effectiveness of the embedded librarianship model, in which librarians embed themselves into courses or departments;² however, a significant time commitment must be made in order for the embedded librarianship model to be successful, which can prove to be a challenge with limited staff and funding. Libraries have also tried to expand public services by hiring and training peer students who staff the reference desk and occasionally teach. While some academic libraries have had success with peer-based information literacy,³ these programs often lack the academic context of embedded librarianship. However, one study concluded that embedding peer mentors into the course curriculum can augment the information literacy instruction that the librarian does, and that they have the capacity to spend more time in the classroom than a librarian.⁴ At UCLA, both peer learning and embedded librarianship programs have been developed with the outcome of integrating information literacy at a programmatic level.

* *Danielle Salomon, Interim Head of Powell Library, UCLA Library; Casey Shapiro, Senior Research Analyst, UCLA Center for Educational Assessment; Reed Buck, Peer Services and Events Assistant, UCLA Library; Annie Pho, Inquiry and Instruction Librarian for Peer Services and Powell Public Programs, UCLA Library; Marc Levis-Fitzgerald, Director, UCLA Center for Educational Assessment.*

Background

The undergraduate population at UCLA includes over 30,000 students and will continue to grow. Consequently, librarians in the undergraduate-focused Powell Library concentrate their instructional efforts on entry-level courses to build foundational information literacy skills. Librarians have served as liaisons to UCLA's Freshman Cluster Program since its inception in 1998. The Freshman Cluster Program offers General Education (GE) Cluster courses, year-long interdisciplinary courses that provide accelerated credits and culminate in inquiry-based research projects. The Freshman Cluster Program is an ideal partner for the Library because the curriculum is one full year and information literacy is one of its learning outcomes. Additionally, it enrolls a large number of freshmen every year (approximately 2,000 students, or 15–30% of the freshman class).

From 1998 to 2012, librarians for the Clusters served in traditional liaison roles: outreach to faculty, providing instruction and research guides as needed, and meeting with students who sought help with their assignments. In 2012, the Library started experimenting with new service models in an attempt to expand and improve information literacy. It implemented peer reference services, online tutorials, and—in a small number of Clusters—embedded librarianship. Similar to other academic libraries, UCLA found embedded librarianship to be highly effective, but not sustainable. Scaling the service would have required doubling or tripling the number of librarians on staff.

Meanwhile, the Library was testing a peer learning program for walk-in reference services. This program trained undergraduate and graduate students to be “Peer Inquiry Specialists,” student workers who specialized in navigating the library's print and electronic resources. The Inquiry Specialists helped staff the reference service points in the undergraduate library, bringing peer-to-peer relatability to our services and representing one of several strategies to move towards a student-centered library system.

Although the Inquiry Specialists were successful at providing general research assistance, they lacked the contextual understanding of course material that embedded librarians could provide. The decision to create a hybrid of the two programs was made in the Spring of 2015 with the inception of the Embedded Peer Inquiry Specialist Program for the GE Clusters. These Embedded Inquiry Specialists were former Cluster students—intimately familiar with the demands of a Cluster—who were nominated by faculty and hired, trained, and supervised by the Library. They were embedded into the Clusters to provide both peer information literacy services and academic context to first-year students.

By piloting a program that combines both embedded librarianship and peer learning theory, the Library seeks to explore three fundamental questions: Is the program *effective* in achieving learning and information literacy goals? Is it *sustainable* in terms of budget and staffing? Is it *scalable* to multiple Cluster courses?

Program

In May 2015, an institutional grant was awarded to the Freshman Cluster Program and the UCLA Library to support a trial phase of the Embedded Inquiry Specialist Program. The program was designed to be a scalable service model, with funding and operational oversight distributed among campus partners and the Library. This distribution of duties was one of several key factors that allowed for a more sustainable program than standard embedded librarianship (for a list of the campus partners involved in the program, see Table 1). Initial grant funds were used to hire, train, and embed five undergraduate students into five Cluster courses to provide research and writing assistance during the Fall 2015 and Winter 2016 quarters.

The Director of the Freshman Cluster Program selected five Clusters (out of ten) to participate in the program. The Library worked with the faculty of the five Clusters to identify and hire student “alums” of those Clusters who had excelled in the course and would be good candidates for an Embedded Inquiry Specialist position. Over the summer, the Library interviewed and hired five students for these positions.

TABLE 1
Division of Responsibilities

Department/Unit	Resource
Center for Educational Assessment	IRB, assessment, data collection and analysis
Library	Project management, training, supervision, space, technology
Freshman Cluster Program	Salaries of Embedded Inquiry Specialists, administrative support
Cluster Faculty	Nomination of students, incorporation of program into curriculum

Before the start of Fall Quarter, the Embedded Inquiry Specialists were given two full days of training. Collaboratively taught by the Library and the Undergraduate Writing Center, the training focused on developing the students' library research skills and their ability to provide research and writing consultations. The Embedded Inquiry Specialists were also trained to lead 40-minute library orientation tours for new students in Cluster courses.

At the start of the academic year, each Embedded Inquiry Specialist met with the embedded librarian and faculty of their Cluster to create a work plan specific to the needs of their Cluster. Because each Cluster's curriculum is different, the work plan was a key element of success that ensured their services were targeted and relevant. Each Embedded Inquiry Specialist was budgeted to work 100 hours per quarter, assuming the following responsibilities in various amounts based on the specific needs of their Clusters: (1) Attend lecture and community activities; (2) Lead library orientation tours and assist with library instruction sessions; (3) Hold office hours in Powell Library for students to drop in for assistance; (4) Provide individual research and writing consultations outside of office hours; and (5) Help students with lecture material and readings; to the extent comfortable.

In the second academic year of the program (2016–2017), the structure remained relatively unchanged with two notable exceptions: the program was scaled from 5 to 7 Cluster courses, and the Freshman Cluster Program funded the Embedded Inquiry Specialists' salaries. Securing this funding was imperative to the successful scalability of the program, so that it does not place an undue burden on the Library to expand the program.

Since the program's inception, a variety of assessments were given to students in Clusters both with and without Embedded Inquiry Specialists to determine if the primary goals of the program (effectiveness, scalability, sustainability) were being met. The data, as well as the techniques used for collection and analysis, are given in the following section.

Assessment

To measure the effectiveness, scalability, and sustainability of the Embedded Inquiry Specialist Program, we utilized four sources of data: institutional data, course evaluations, course assignments, and self-report surveys. Data collection began in Fall 2015 and is ongoing. UCLA's Institutional Review Board (IRB) gave approval to collect and analyze data for this study.

Institutional data: A variety of institutional data sources were utilized for this study. These include registrar data, such as course enrollments and student demographics collected by the University. This data was then merged into survey data as per our IRB approved protocol. A second set of institutional data on Library/Inquiry Specialist usage and budgeting was collected directly from the leadership of the Embedded Inquiry Specialist Program. This data was used for descriptive analyses.

Course Evaluations: As part of UCLA's regular Evaluation of Instruction Program (EIP), quarterly anonymous surveys are given to students to assess their experiences with the course, instructors, and teaching assistants. In conjunction with the leadership of the Freshman Cluster Program, specialized evaluation forms were developed to assess student experiences in the GE Cluster courses as well as learning and skill development. Of particular interest for this study were questions about the development of foundational academic skills, including library and research skills, and their experiences with the Embedded Inquiry Specialist and Library. In Fall 2015, the overall response rate for all GE Clusters combined was 68.9% (N=1244) and in Fall 2016 the overall response rate was 70.9% (N=1311). Descriptive statistics were run to obtain a basic understanding of students' self-reported satisfaction with the GE Cluster courses and growth in library and research skills. To assess differences between Clusters with and without an Embedded Inquiry Specialist, independent samples *t*-tests were utilized.

Course Assignment: During the 2015–16 academic year, GE Cluster students were asked to complete a pre/post questionnaire measuring information literacy skills. The pre/post questionnaires consisted of 16 multiple-choice questions that were developed by the leadership of the Embedded Inquiry Specialist Program. The questions evaluated students' ability to do the following: distinguish popular and scholarly sources; distinguish primary and secondary sources in the sciences and humanities; understand Boolean operators; identify the components of a citation; understand when a citation is needed; evaluate sources; and navigate the UCLA Library website. The pre-questionnaire was a course assignment given to all GE Cluster students in Fall 2015. The post-questionnaire was not a course assignment in Spring 2016 and as such the response rate was much lower. The response rate for Fall 2015 was 99.4% (N=870); for Spring 2016 it was 38.3% (N=287). Analysis involved direct comparison between the mean scores of the pre- and post-questionnaires and can be found in Table 4.

Student Survey: In partnership with the UCLA Center for Educational Assessment (CEA), a survey was developed to measure students' engagement with the Embedded Inquiry Specialists and the impact of the program on student learning and retention. The survey was sent electronically by CEA in Fall 2015 to students enrolled in each of the five GE Clusters with an Embedded Inquiry Specialist. Of those students, 29.9% responded to the voluntary survey (N=261). In Fall 2016, a slightly modified version of the survey was sent electronically to the new cohort of GE Cluster students in the seven GE Clusters that had an Embedded Inquiry Specialist. Of those students, 22.3% responded to the voluntary survey (N=302).

The student survey utilized both open- and closed-ended questions to allow qualitative and quantitative analyses to be conducted. Descriptive analyses and z-score tests were conducted on the quantitative measures. Analysis of open-ended data was a multi-step process. It began with a trained CEA researcher reviewing individual responses and coding them into distinct themes. Once this was complete, frequencies and percentages of student responses according to each theme were calculated. This was then shared with program leadership. Together the research team and program leadership further revised the codes for conciseness and to remove any redundancy. Of particular interest for this paper were the open-ended questions involving the impact of the Embedded Inquiry Specialist on students' learning and their desire to remain part of the Cluster.

Outcomes

As stated before, the goals of these assessments were to analyze the effectiveness, sustainability, and scalability of the Embedded Inquiry Specialist Program. Preliminary compiled results are listed below, organized by goal.

Effectiveness (Learning, Engagement, Retention Outcomes)

EIP Reports

An analysis of the student course evaluations collected in Fall 2015 demonstrated, on average, that Clusters with

an Embedded Inquiry Specialist scored 32.5% higher on research skills ($p<0.01$) and 47.4% higher on library skills ($p<0.01$) than Clusters without an Embedded Inquiry Specialist (Table 2). The Fall 2016 results follow a

TABLE 2
Evaluation of Instruction Program Report (Fall 2015)

	Cluster	Research Skills*	Library Skills*
No Inquiry Specialist	America in the 60's	2.39	2.00
	Sex, Biology, and Society	2.42	1.85
	Frontiers of Human Aging	2.78	2.55
	Interracial Dynamics	2.08	1.87
	History of Modern Thought	2.20	2.19
	AVERAGE	2.37	2.09
Inquiry Specialist	Evolution of the Cosmos and Life	3.15	3.19
	Mind over Matter	3.12	3.17
	Biotechnology and Society	3.15	2.99
	Food and Environment	3.36	3.10
	Perspectives on Myth	2.92	2.93
	AVERAGE	3.14	3.08
	Difference in average scores	0.77	0.98
	Difference in average scores (%)	32%	47%

Source: Office of Instructional Development, Fall 2015 EIP reports

*Students are asked to "indicate the extent to which this cluster strengthened your skills or knowledge" on a scale of 1 to 4.

TABLE 3
Evaluation of Instruction Program Report (Fall 2016)

	Cluster	Research Skills*	Library Skills*
No Inquiry Specialist	Frontiers of Human Aging	2.80	2.48
	Interracial Dynamics	2.36	2.21
	Los Angeles	2.21	1.98
	AVERAGE	2.47	2.24
Inquiry Specialist	Evolution of the Cosmos and Life	3.19	2.90
	Mind over Matter	3.10	3.05
	Biotechnology and Society	3.18	2.95
	Food and Environment	3.29	2.98
	American in the 60's	2.47	1.88
	Sex, Biology, and Society	2.90	2.76
	History of Modern Thought	2.36	2.24
	AVERAGE	2.94	2.72
	Difference in average scores	0.47	0.48
	Difference in average scores (%)	19%	21%

Source: Office of Instructional Development, Fall 2016 EIP reports

*Students are asked to "indicate the extent to which this cluster strengthened your skills or knowledge" on a scale of 1 to 4.

similar upward trend, whereby students in Clusters with an Embedded Inquiry Specialist self-report higher levels research and library skills (19.0% higher ratings in research skills, $p < 0.01$ and 21.4% in library skills, $p < 0.01$ respectively; see Table 3). In the 2016–17 academic year, two new questions about Library services were added to the GE Cluster course evaluation forms asking students the extent to which they agree that: (1) “The peer Inquiry Specialist contributed to my success in the Cluster.” and (2) “Librarians and/or Inquiry Specialists helped improve my library research skills.” Students were permitted to respond on a scale of 1–4, with a 4 being complete agreement and a 1 being complete disagreement. As such, a score of 2.5 would be considered average (representing neutrality towards Embedded Inquiry Specialists and librarians). Using the weighted average of the combined data from all Cluster student participants, preliminary results indicate that students largely agree that the Embedded Inquiry Specialist contributed to their success in the Cluster ($\mu = 2.74$, $SD = 1.16$, $N = 664$). Respondents also agree that Librarians and/or Embedded Inquiry Specialists helped improve their library research skills ($\mu = 3.07$, $SD = 0.95$, $N = 754$). Further data collection is needed before definitive conclusions can be made, however.

CEA Survey

The CEA survey was offered to all students enrolled in Clusters with Embedded Inquiry Specialists at the end of the Fall 2015 and Fall 2016 quarters. Of the respondents, 43.4% had used an Embedded Inquiry Specialist one or more times; 68% of those who had used an Embedded Inquiry Specialist said they were “Helpful” or “Very Helpful”; and 21.4% of respondents felt that their Embedded Inquiry Specialist positively impacted their desire to stay in the Cluster course (an important finding for the Freshman Cluster Program, which has a goal of improving retention). In Fall 2016, a slightly modified survey was offered to students in the seven Cluster courses with Embedded Inquiry Specialists. Of the respondents, 37.3% had sought help from an Embedded Inquiry Specialist one or more times; 95% of those who had used an Embedded Inquiry Specialist said they were “Helpful” or “Very Helpful”; and 50% of students who had seen an Embedded Inquiry Specialist felt the Inquiry Specialist positively impacted their desire to stay in the Cluster course. An additional question asked “Did your experience(s) with the Inquiry Specialist impact your learning in the course?” to which 63.6% of respondents answered “Yes.”

Information Literacy Assessment

A 16-question multiple-choice questionnaire measuring information literacy skills was given to the students online at the beginning of the 2015–2016 academic year and once again at the end of the year. The results demonstrate that in the first year of the program, students in the five Clusters acquired information skills that they did not have when they started at UCLA (Table 4). In 2016–2017, the leadership team decided to discontinue the information literacy questionnaire in favor of adding two questions to the EIPs, which will provide assessment data automatically three times per year.

TABLE 4	
Information Literacy Quiz Data (2015–2016)	
Pre-Assessment (Fall 2015)	Post-Assessment (Spring 2016)
N=885	N=287
Average score: 79%	Average Score: 88%
Source: UCLA Common Collaboration Learning Environment	

Sustainability

Due to the funding structure described previously, the cost of expanding the Embedded Inquiry Specialist Program did not place an unrealistic burden on the Library. To add one additional Cluster course to the program cost approximately \$3,000 per year for the Embedded Inquiry Specialist's salary, which was covered by the Freshman Cluster Program; additional variable costs were minimal and covered by the Library (such as adding temporary staff hours to help oversee the program, purchasing additional student employee "jackets," etc.). Upon expanding the program from five Cluster courses to seven, the Library invested in one-time capital costs that included repurposing a larger room for consultations, purchasing additional laptops, and upgrading classroom technology.

At the current time, the Library has the capacity to expand the Embedded Inquiry Specialist Program without adding any significant costs; the variable costs (salaries) of adding more Embedded Inquiry Specialists are funded by the Freshman Cluster Program.

Scalability

The initial analyses of the library usage data suggest that the Embedded Inquiry Specialist Program increased the reach of the UCLA Library far beyond what could have been done by the librarian liaisons themselves. In the first year of the program (2015–2016), the Embedded Inquiry Specialists reached 830 unique students (totaling 15% of the incoming first-year class) with some form of library instruction. Specifically, the Embedded Inquiry Specialists provided a total of 269 consultations that served 433 students as well as 57 forty-minute library orientations that reached 830 students. By the end of Winter Quarter, approximately 20% of the students in all five Clusters had contacted an Embedded Inquiry Specialist for a consultation outside of class time.

TABLE 5
Embedded Inquiry Specialist Program Growth

	Fall 2015	Fall 2016	% change
Number of Embedded Inquiry Specialists	5	7	40%
Number of Unique First-Year Students Reached*	1,014	1,351	33%
Size of UCLA Freshman Class	5,680	6,546	15%
% Reach of UCLA Freshman Class	18%	21%	3%

Source: Registrar data and Library reference and instruction statistics.

*Students who received a library tour, orientation, consult, or instruction are counted. Estimate is conservative due to the exclusion of students who dropped out of a Cluster after receiving library instruction.

The second year proved even more successful. The incoming class of 2020 measured 15% larger than the previous year, and yet with the expanded Embedded Inquiry Specialist program, the UCLA Library was able to reach an additional 3% of the freshman class (a 33% increase in total number of students assisted, as shown in Table 5). In the Fall 2016 quarter, Embedded Inquiry Specialists provided a total of 192 consultations that served 259 students and gave 48 library orientation tours to a total of 660 Cluster students, reaching 10% of the freshman class. These statistics are from the Fall quarter alone (as opposed to the statistics from both Fall and Winter quarters in the 2015–2016 academic year) and can be considered in-progress.

Conclusions/Next Steps

Conclusions

The preliminary results of this program span only one and a half academic years; as such, definitive conclusions cannot yet be drawn about the efficacy of the program. Regardless, the results point to a beneficial effect of the Embedded Inquiry Specialist Program on students' library and research skills, as well as their desire to stay in their Cluster courses. The program has allowed us to reach an increasing proportion of the incoming first-year class, despite annual increases in the total size of the class. Future assessment will be able to provide us with a better understanding of how the foundational skills imparted by Embedded Inquiry Specialists continue to build over the course of students' undergraduate careers; in any case, these preliminary results indicate this program is an effective, sustainable, and scalable first step to information literacy.

Next Steps

Our goals for the program will be revisited after collecting the full year's data from the 2016–2017 academic year. At this point, the goals include attempts to scale the program to all ten of the Cluster courses. Assessment goals include collecting longitudinal data on the program's efficacy in imparting foundational information literacy skills and influencing rates of participation in undergraduate research. Additionally, Cluster attrition rates will be examined as the program expands and reaches more students.

Finally, embedded librarians have attempted to introduce course-integrated library assignments into several of the Clusters. Librarians work with Cluster faculty to draft content for these assignments, which include online quizzes and learning modules, citation roadmaps and database search exercises, and self-guided library tours. Our goal for the future is to explore how this diversification of assignment types, in conjunction with embedded peer learning paradigms like the Embedded Peer Inquiry Specialist Program, may open up new gateways to information literacy.

Notes

1. "Framework for Information Literacy for Higher Education," Association of College and Research Libraries, accessed Feb 3, 2017, <http://www.ala.org/acrl/standards/ilframework>.
2. Schulte, Stephanie J.. "Embedded Academic Librarianship: A Review of the Literature." *Evidence Based Library & Information Practice* 7(2012), no. 4: 122–138. *Library Literature & Information Science Full Text* (H.W. Wilson), EBSCOhost (accessed February 2, 2017).
3. Bodemer, Brett B. "They CAN and they SHOULD: Undergraduates providing peer reference and instruction." *College & Research Libraries* 75 (2014): 162–178. Accessed February 3, 2017. doi:10.5860/crl12-411
4. Murphy, Jo Ann. "Enhancing the student experience: A case study of a library peer mentor program." *College & Undergraduate Libraries* 23 (2016): 151–167. Accessed February 3, 2017. doi:10.1080/10691316.2014.963777