

They CAN and They SHOULD: Undergraduates Providing Peer Reference and Instruction

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Peer learning dynamics have proven powerful in collegiate contexts. These dynamics should be leveraged at the undergraduate level in academic libraries for reference provision and basic information literacy instruction. Drawing on the literature of peer learning, documented examples of peer reference and instruction in academic libraries, and preliminary evidence from current practice at California Polytechnic State University San Luis Obispo, this article provides support from the pedagogical standpoint that undergraduates not only *can* provide peer reference and instruction, but *should*. The relevance to other institutions and additional assessment methods for establishing the efficacy of peer instruction are also discussed.



The impact of college peers on each other has been widely acknowledged and documented in higher education literature, and academic administrators have increased deliberate efforts to leverage this positive influence in a range of areas.¹ Student life is not compartmentalized, with course content acquisition isolated in some unique chamber, but rather integrated, and peer-to-peer learning, involving both cognitive and affective domains, can exert itself via many formal and informal channels. As Lee Williams, Vice President for Student Affairs and Dean of Students at Wheaton College in Massachusetts, writes: "There is no aspect of the collegiate experience ... that cannot benefit from the involvement of a peer

who explains, in language often more accessible, a difficult concept. A peer can talk with students about relationship violence, parking tickets, study skills, self-advocacy, library resources, and motivating a resistant student organization, in ways even the most knowledgeable professionals cannot."²

Academic libraries would be remiss in not seeking to harness peer learning dynamics to enhance student learning and success. Two settings ripe for such positive intervention are reference and basic information literacy instruction. Drawing on the literature, and providing preliminary assessment results from a recent implementation of a peer reference and instruction program at California Polytechnic State University San Luis

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Obispo, the case can be made that trained undergraduates are optimal for providing peer reference and basic information literacy instruction, and should, in appropriate settings, be employed in this way.

Peer Learning

A majority of research on peer learning draws on the developmental psychology of Jean Piaget and the sociocultural learning theory of L.S. Vygotsky.³ Various terminologies have been applied to methods attempting to capitalize on peer dynamics, including peer tutoring, peer mentoring, and peer teaching. In its simplest formulation, peer learning is “an educational practice in which students interact with other students to attain educational goals.”⁴ Yet the simplicity of this definition and its bald restriction to students inadvertently masks the complexity of such interactions. Piaget, for example, found that “cooperative relations were more likely to occur when children interacted with other children rather than with adults”⁵ and that children were more “likely to enter into a true negotiation of reasoning with partners who are not seen as holding positions of authority.”⁶ Similarly, Vygotsky postulated a *zone of proximal* development, in which learning is enhanced by exploration through social and cognitive interaction with a more competent peer.⁷ Peer educational practices, then, generate learning benefits through important components of social relationships.

A more precisely delineated construct, peer-assisted learning (PAL), opens further windows onto those relationships. Peer-assisted learning is “the acquisition of knowledge and skill through active helping and supporting among status equals or matched companions. PAL is people from similar social groupings, who are not professional teachers, helping each other to learn and by so doing, learning themselves.”⁸ According to this definition, learning accrues to all parties involved, helpers as well as helped. Keith Topping and Stewart Ehly, in their volume

devoted to PAL, categorize the learning advantages of PAL as both cognitive and affective. Cognitive advantages derive via a blend of immediacy, simplification, prevention of overload, modeling, opportunities for error and self-correction, verbal and nonverbal reinforcement, problem identification, definition, and solving.⁹ Similarly, affective advantages of PAL come via many channels, including identification, bonding, modeling of enthusiasm, self-confidence, self-belief, lowered anxiety, and empathy.¹⁰

A key principle of PAL is that the differential between the helper and the helped not be too great, for such disparities can prove understimulating for the helper and also serve to impede successful modeling.¹¹ Reciprocal cognitive elaboration where relative parity exists has been discerned in analyses of peer tutoring interactions in which helpers ask preliminary questions, get preliminary answers, then give feedback, leading to a cycle of questions and answers, moving in the direction of comprehension.¹²

Among many PAL methods, Topping and Ehly list peer tutoring, peer modeling, peer education, and peer counseling, yet exclude peer mentoring.¹³ As peer mentoring has frequently been deployed in higher education, and shares many features with PAL, a further discussion is warranted. Its appropriateness can probably be linked to whether one takes mentoring in a broad or a narrow sense. Although the historic sense of mentoring (traceable to Homer) matches a considerably older and more experienced mentor with a mentee, peer mentoring matches people who are “roughly equal in age, experience, and power.”¹⁴ The following definition, with its emphases on helping, parity, and psychosocial components, echoes important facets of PAL:

Peer mentoring is a helping relationship in which two individuals of similar age and/or experience come together, either informally or through formal mentoring schemes,

in the pursuit of fulfilling some combination of functions that are career-related (e.g. information sharing, career strategizing) and psychosocial (e.g. confirmation, emotional support, personal feedback, friendship)."¹⁵

Further traits associated with peer learning abound in the peer mentoring literature, including nurturing, serving as a role model, teaching, encouraging, and counseling, with the latter even described as a "problem-solving process that includes behaviors such as listening, probing, clarifying, and advising."¹⁶ Peer learning, then, can be facilitated through an array of methods. What they have in common is the merging of cognitive and affective elements that combine to elicit positive outcomes by leveraging inherent social dynamics.

Not surprisingly, peer learning in higher education runs a gamut from course-based tutoring and peer writing programs to initiatives aimed at specific student populations, such as first-year students, minority students, or students with disabilities. Activist peer programs have also been launched to counter campus social ills such as harassment and violence.¹⁷ Many implementations of peer learning are not solely targeted at achieving specific learning outcomes but simultaneously strive to enhance the overall university experience.¹⁸ Success on both fronts has been measured using a variety of qualitative methods, as well as quantitative indicators such as grades, grade point average, retention, and graduation rates.¹⁹

Applications in Academic Libraries

One obvious setting for facilitating peer learning in academic libraries is reference. Cognitive progressions of problem solving addressed through questioning, listening, and clarifying, combined with affective components such as modeling and empathy, performed on a more nearly horizontal level, have the potential to

transform the traditional reference interview into a "peer-compatible" model. This one-to-one interaction falls into the dyadic category of PAL.²⁰ With helpers at a level of capability closer to those being helped, and both members finding cognitive challenge in their activity, the "teachable moment" so often vaunted in the literature of academic librarianship can be transformed into a "mini-mentoring" moment. In this manner, though still bearing the marks of a formal event (especially if transacted at a desk) student learning can be enhanced by the informality inherent in peer-to-peer interaction.

A second opportune locus for peer learning is basic information literacy instruction. Expert librarians are prone to overcomplicating basic instruction, when the real trick is to turn absolute essentials into terms and processes that students understand. By mere virtue of being a student, an undergraduate with proper preparation is in a better position to accomplish this. Even in a formalized classroom setting, the undergraduate session leader is more apt than librarians to use language understood by student participants. In addition, having quite possibly taken the same course, the undergraduate session leader can speak from personal experience as to what works well. This one-to-many variant of PAL is categorized as contact constellation,²¹ and when the student has recently taken the course it is characterized as cross-level peer tutoring.²²

It is also important to note the potential synergy between peer reference and instruction and the pertinence of having the right students provide both. This is not merely a matter of compounding content competence but a strategic issue of affective impact. A 2007 review of studies discussing the desired characteristics of student peer mentors in higher education found the following to be the most frequently considered descriptors: communication skills (35%); supportiveness (30%); trustworthiness (30%); ability, willingness to commit time (26%); and

empathy (24%).²³ Many of these overlap with the qualities that students desire in a teacher, identified in a 2009 article as enthusiasm, empathy, communicating effectively, identifying important ideas, giving good examples, and connecting material to real life.²⁴

Peer providers who bring these qualities are not only able to connect material to real life, but, having gained expertise and confidence in providing reference, can model these traits in delivering instruction. Pedagogically, the importance of affect in student learning has been highly undervalued in information literacy instruction.²⁵ Building on decades of research on information-seeking behavior, Diane Nahl in 2005 posited an Affective Coping Skills measure that combines the measures of self-efficacy and optimism, which have beneficial effects on success in information tasks by counteracting "negative emotions such as irritation and frustration."²⁶ To have peers who model self-efficacy and optimism lead sessions is a built-in way to leverage affective learning benefits in information literacy instruction.

To recap the argument so far: research has demonstrated multiple advantages of peer learning; 2) peer learning is being variously implemented in higher education; 3) reference and basic information literacy instruction are opportune settings for peer learning; 4) therefore, undergraduates *should* provide reference and basic instruction.

The looming question, then, is this: *can* they? Can undergraduates truly provide quality reference and basic information literacy instruction? The next two sections will survey the existing literature, to be followed by evidence from practice and preliminary evaluative data from a peer reference and instruction program at Cal Poly San Luis Obispo.

Can Undergraduates Provide Quality Reference?

Academic library literature indicates sporadic attempts to engage undergradu-

ates in reference at least since the 1970s, trending in the direction of limited acceptance toward the millennium, until, at last, in 2009, one finds the unequivocal statement that "undergraduates are not only capable but perhaps optimal at providing high-quality reference service to their peers."²⁷ If one were content to stop here, the answer to the question "Can undergraduates provide quality reference?" would be a simple "Yes." However, a closer look at some historical attempts to employ undergraduates in reference reveals varied motivations, reservations, and technological shifts that inform a more considered answer.

A very early example strikes several notes that echo through succeeding decades. In 1975, California State University Fresno began employing undergraduates for reference based on strictly pragmatic needs and analysis. The head of the Reference Department, William Heinlen, after coding a large sample of transactions, determined that 70 percent of the questions could be satisfied with "facts about the internal operation of the library" such as "Where is the pencil sharpener? Where are the accounting books?"²⁸ Heinlen found that another 11 percent regarded external facts such as population figures, while only 19 percent of the total qualified as complex research questions.²⁹ To ease pressure on librarians, students were trained and positioned at a separate desk only several feet from the desk staffed by librarians. This was not a mere act of redundancy. According to Heinlen, "the student answers the phone, gives directions, and answers simple reference questions. Equally important, the student refers more complicated inquiries to the reference librarian. In short, the student assistant is a sorter of reference questions."³⁰ After implementing this model, the number of answered questions increased, while the previously long lines diminished.

One feature of Heinlen's account that recurs in later descriptions of peer reference is the expectation that students

would refer certain types of questions to librarians. Another recurring theme is that the strategy inadvertently created a proximal zone of interchange between the students and the librarians in which both groups learned. A third striking note is the professional resistance to this arrangement that he encountered. "Librarians," he wrote, "were disturbed at the notion of allowing students to answer simple reference questions. Several were adamant in their refusal to accept the notion that a trained student might be able to lead one of his untutored colleagues through the mysteries of the *World Almanac*."³¹

CSU Fresno's deployment of undergraduates in the seventies was driven by organizational pragmatism. In the eighties, another variety of undergraduate reference deployment was driven by attempts to meet the needs of minority students and aid in their retention. The Reference Assistance Project (RAP) at the University of Wisconsin-Parkside was initiated in 1980 to train undergraduates to provide reference assistance on a limited basis.³² Its immediate aim was to help minority students complete the library component of a Collegiate Skills Program but with the ultimate goal of increasing the minority retention rate.³³ Program details reveal that it was both limited in scope, with only two students working twelve hours per week, and did not aim at reference provision in the usual sense, but was directed toward peer assistance with two curricular items: a library assignment for English 100 and a *Basic Library Skills Workbook* for English 102. The students were given a well-signed station near the reference desk, and, after the workbook questions had waned, began handling directional and informational questions.³⁴ A preliminary assessment of the RAP project offered the conclusion that trained undergraduates can provide limited reference services and are perceived as useful by students.³⁵ As with Fresno, the students provided the librarians a fresh perspective, and even made useful suggestions for improving

the library skills workbook.³⁶ The usual questions of professional prerogatives also came into play, for several years into the RAP program the librarians were still engaged in ongoing discussions about the types of reference questions appropriate for students to handle.³⁷

In 1985, the University of Michigan Undergraduate Library initiated The Peer Information Counselor Program (PIC), also intended to bolster the retention of minority students. Seven minority students were hired and assigned work in five areas: "assisting patrons at the undergraduate (UGL) reference desk; tutoring students in word processing; providing term paper assistance; producing instructional materials, and publicizing the PIC program."³⁸ Although assessments conducted in the 1980s were inconclusive as to whether or not PIC contributed to retention of minority students, positives of the program were perceived by both staff and librarians. "Staff were very favorably impressed by the performance of the counselors, finding them more adept at process questions—[such as] how to find magazine articles—than questions requiring knowledge of particular reference sources, or knowledge that is acquired in library school or by long use of the collection. The librarians were especially impressed with the strong public service attitude of the counselors and their eagerness to learn."³⁹ This model inspired other deployments of peer reference assistants, including Odum Library at Valdosta State University (Georgia) in the nineties and California State University San Marcos in 2001.⁴⁰ It is interesting to note that at Valdosta State a third objective, very pragmatic, and not related to the learning experience and retention of minority students, was, as with Fresno in the 1970s, to provide sufficient reference desk coverage.⁴¹

In the nineties, the deployment of undergraduates for reference appears as part of the effort to implement library spaces as multipurpose Information Commons. In this effort, Leavey Library

at the University of Southern California was an early innovator, with librarians, staff, and students providing both reference assistance and computer assistance in the mid-nineties, and moving to a fully integrated model at the end of the decade. In 2000, all of Leavey's student navigation assistants (SNAs) were trained to provide coverage during open hours of the library. In addition to computer competencies, the students were trained "to have an understanding of the basics of USC's electronic resources; to be knowledgeable about USC's collections; and to know how (and recognize when) to refer questions."⁴² Student navigation assistants still provide service at Leavey, with several mechanisms in place for evaluating their performance.⁴³ These include joint shifts with librarians or professional library staff members, who mentor and supervise the SNAs and provide feedback to the Information Commons Manager. SNAs also report desk activities at the end of each shift, with brief descriptions of what questions they received and how they handled them. The Information Commons Manager reads and reviews all shift reports and offers correction either individually or for the benefit of the entire team on the mail list. Leavey was the explicit inspiration for a similar staffing model as far away as the University of Cape Town in South Africa.⁴⁴

Though this sampling of literature suggests that the use of undergraduates at reference points has increased since the 1970s, red flags of librarian concern for quality control have not diminished. In an extreme example, student assistants at the University of Northern Iowa in 2001 were strictly directed to always pass questions to librarians if the patron opened with, "I have an assignment" or "I am doing research on..."⁴⁵ While it might be tempting, with Heinlen, to view such guardedness as "a spurious inflation of the professional ego" it can also be viewed as professional concern for providing excellent service.⁴⁶

It is more constructive, however, to view it in the diachronic light of evolving

technologies, shifting resources, and the changing nature of reference. All three are evident as early as Jerry Campbell's 1992 article, "Shaking the Conceptual Foundations of Reference." Campbell (at that time University Librarian at Duke) challenged the traditional model. Beginning with an analysis of reference questions similar to that assayed by Heinlen at Fresno in the 1970s, he notes that a large number are directional, operational, technical and factual, with only 30 percent qualifying as bibliographical/source, and only 10 percent being true research questions.⁴⁷ Writing nearly twenty years after Heinlen, however, Campbell's proposed solutions are based on an environmental scan of changes in information resources and technology. Campbell saw the electronic writing on the wall and argued that the traditional print-based model could not survive. He suggested an optimization of technology, arguing that repurposed reference librarians should conceive of themselves as Access Engineers who are expert in Knowledge Cartography, Consumer Analysis, and Access Engineering. As such, their role is to "make sense of the myriad sources of information, learn and know the consumers of information, and engineer strategies for transferring information to the user."⁴⁸

In 1993, Campbell served as keynote speaker at a conference titled "Rethinking Reference: New Models and How to Get There." A report on this event by Larry R. Oberg reveals contemporary attempts to change reference practices. Although Campbell's ambitious technocratic vision was too extreme for some, several libraries were taking steps in nontraditional directions. At Brandeis and John Hopkins, the reference desks had been replaced by information desks staffed exclusively by graduate students.⁴⁹ In other libraries, the traditional reference desks had been eliminated entirely or served as "scaled-down" supplements to basic information desks.⁵⁰ Oberg succinctly assesses the reasoning behind these models as "attempts to separate reference into its two logical

components: information provision and research support. Most of these models assign responsibility for answering informational, directional, and less complex reference questions to paraprofessionals or graduate students. The more complex questions are referred to librarians who are available for consultation by appointment, during office hours, or at drop-in clinics."⁵¹

Aside from the reliance on graduate students and paraprofessionals, these arrangements parallel the few deployments we have seen for undergraduates. As none of the literature addresses the acceptability of graduate students and paraprofessionals vis-à-vis that of undergraduates, it might well be that the objections to undergraduates were deemed so obvious that nobody felt compelled to spell them out. Certainly it is easy enough to imagine such objections; for instance, as compared to graduates, undergraduates have a limited knowledge base and much less experience in interpersonal relationships.

Regardless of any bases for unexpressed prejudice against undergraduates, there are clear examples where they have proved successful, with a rise of instances over the decades. Changes in information technology and resources have doubtless paved the way for such a move. The extent of this change has even been intimated by some nouns in the sampling of the literature. We have moved from the "mysteries of the *World Almanac*" and a "*Basic Library Skills Workbook*" to "tutoring in word-processing," and the Information Commons. Perhaps it was harder to train undergraduates in a print-based world. Certainly, though, if we take a good look at current tools and how they match student capabilities, this is an optimal time to employ undergraduates for reference. They have been using a database (though not under that name) for much of their lives: Google. They have the rudiments of searching, however primitive. With limited but strategic training, they can gain sufficient expertise in the use of library

resources to help others. Moreover, if we take a further cue from Campbell and envision ourselves as "Access Engineers" who factor consumer analysis into our strategies, we will recognize that students (our consumers) learn well from other students, and we will facilitate information access and learning via that channel.

The literature, then, supports the notion that undergraduates *can* provide quality reference, especially if one conceives of reference as including information-provision, basic research support, and triage for more in-depth research.

Can Undergraduates Provide Basic Information Literacy Instruction?

In contrast to the multiple instances in the literature in which undergraduates have provided reference, it is far more difficult to find instances where they have been allowed to genuinely teach.⁵² One of the very earliest programs, however, slightly predates CSU Fresno's reference deployment and also serves as a stellar example of leveraging the social facets of peer learning.

The Wabash College Library Project was funded in the 1970s by the Council on Library Resources' College Library Program, designed to strengthen the role of academic libraries in the educational process.⁵³ As a long-term experimental program, the Wabash project had the advantage of great flexibility, and original failures were turned to good account. Initially, selected upper-division students were given intensive bibliographic instruction to assist in small freshmen seminars. However, the need for bibliographic assistance waned as the seminars and term progressed. Similarly, at Wabash, where 70 percent of the students belonged to fraternities, it was hoped the trained students would be able to discuss research problems informally in the fraternity houses, but this component was discontinued due to the infrequency of such conversations.⁵⁴ When the seminar and Greek life options washed out, the program looked to faculty responsible for

Speech I, a course with many sections, a high enrollment of freshmen and sophomores, and content incorporating speech composition and delivery. The faculty recommended four upper-division students who then participated in an eight-week seminar with reference librarians.⁵⁵ After this training, the students served as teaching assistants, working regularly with the lower-division students, helping with topic selection, research methods, and source types and striving to improve the quality of research and clarity of thought.⁵⁶ The five-year evaluation of the project noted that one aim was "to reach a large portion of the student body, not with highly selective bibliographic instruction (such as we have offered student assistants) but with instruction available to students during that particular moment when they express their classroom related needs."⁵⁷ This aim was accomplished through intensively training undergraduates and actively deploying them in classroom roles.

Certain elements of the Wabash Project anticipate features strongly associated with peer learning and mentoring. One impetus of its original design was to facilitate learning in informal environments, but particularly germane is the following description of the assistants' activities: "The assistant in Speech actually serves as an upper division counselor, usually knowledgeable on a fundamental basis with a wide range of student interests. Naturally, the assistant's commitment is necessary to cement this relationship, but the key to meaningful interactions (that was not present in the freshman tutorials) is that assistants were able to be of service in a broad range of areas."⁵⁸ This description of these interactions allows us to see how library-related services need not exist in an isolated vacuum but can form part of a continuum with other components of collegiate life.

Another striking feature of the Wabash Project is the genuinely prominent teaching role allowed to the students. The few articles that mention undergraduates and

teaching in the same breath generally relegate the students to a peripheral role.⁵⁹ At Wisconsin-Parkside, for instance, the RAP students only helped with instructional *materials*.⁶⁰ At Valparaiso University, while students at the reference desk were described as indispensable to instruction, their duties only involved updating instructional materials and the library website.⁶¹ Even when granted access to the classroom, the role for undergraduates is rarely much greater. At the University of New Mexico General Library (UNMGL), library-related tutors were grafted in the late 1990s into existing campus tutoring programs, where students in need could consult one of these "library strategies" tutors.⁶² In due course, the tutors were invited into the classroom to serve as assistants. Their clearly defined classroom role was to roam and observe the computer screens during the hands-on portion of the sessions, offering assistance as needed and thus allowing the librarian to continue lecturing without interruption.⁶³ In another program dating from the same era, also building on an existing campus tutoring program, a tutor was given library training to accompany a librarian to instructional sessions. There, after being introduced, the advisor described her "own initial reluctance to use electronic resources. She told the students that hands-on practice was essential, and she offered to tutor and work with them individually."⁶⁴ A slightly looser rein was given to students at the University of New Hampshire at Manchester in a program begun in 2003 that also built on an existing tutoring regime. After training by librarians, class-linked tutors presented short research skills demonstrations in the library instruction component of the class.⁶⁵ At Utah State University in 2005, students employed at the reference desk also formed part of the library instruction team, co-teaching with librarians and offering one-on-one assistance. In a mention that suggests the highly unusual nature of the event, one of these students was even allowed to teach a full session of business

students, but notably, only while a librarian observed.⁶⁶

So what about the possibility of undergraduates teaching solo? Not as assistants, but individually, with no librarian hovering nearby? Instances in the literature of this kind of latitude for undergraduate teaching are extremely hard to discover.

One exception is an article detailing the undergraduate teaching assistant program at the University of Maine at Farmington (UMF). In 1998, librarians at Mantor Library enlisted education majors looking for classroom experience to lead information literacy sessions aimed at lower-division students.⁶⁷ The students not only led sessions, but participated in curriculum design.⁶⁸ They also initiated and executed a program that provided workshops on library resources for tutors in the campus Writing Center. The authors deemed the teaching program a success, citing as measures the very positive feedback from the director of the Writing Center and from its tutors, who even recommended adding the library component to their required training.⁶⁹

Another exception was described in 2001 by librarians of the George A. Smathers Libraries at the University of Florida. A collaboration between Anthropology students, an Anthropology Undergraduate Coordinator, and a library Instruction Coordinator, this innovative program offered course credit for two upper-division students who provided library instruction sessions for a large number of lower-division Anthropology courses. The two peer teachers collaborated on the lesson plan and worked with the professional coordinators to develop a final script. They also developed evaluative tools that focused on attendees' library experience and acceptance of peer teaching in that context.⁷⁰ Responses to one question in particular offer initial support for the claim that students respond well to peer teachers in library instruction. In fall 1999, 61 percent of the respondents answered "Yes" to the query, "Did you

feel more comfortable being taught by the undergraduate instructor than you would have with a librarian?" and in fall 2000, 69 percent responded "Yes."⁷¹

A current example of peer instruction can be found at Brigham Young University, where undergraduates working at the reference desk also lead basic information literacy sessions. Suzanne Julian presented details of the program in the poster-presentation, "The Power of Peer Mentors in Library Instruction" at *ACRL 2011*, and expressed satisfaction with the success of the model.⁷²

These few precedents in allowing undergraduates to teach outright are uniform in expressing satisfaction with the results. However, more evidence is warranted to definitively claim that undergraduates *can* provide basic information literacy instruction.

The ensuing case study of a peer reference and instruction program provides further preliminary evidence for such a claim and outlines assessment strategies, some of them already in progress, that may succeed in putting the claim on unassailable foundations.

Evidence from Practice: The LibRAT Program

The LibRAT (Library Research Assistance Technician) program at California Polytechnic State University San Luis Obispo was conceived in fall 2009 and piloted in spring 2010. Cal Poly is a primarily undergraduate institution, with an enrollment of 17,000 students and, because of its relative isolation on California's Central Coast, has a high percentage of lower-division, on-campus residents. The original thrust of the LibRAT Program was to provide peer reference in the residence halls. Five lower-division on-campus residents received extensive training in reference provision in winter 2010 and were then deployed in their residence halls in spring quarter. They received very few questions during the pilot quarter but received additional weekly training and were again stationed in the halls in fall 2010. At this

time, they began providing local chat reference. Although they still received minimal face-to-face questions, librarian review of chat transcripts revealed them to be knowledgeable and congenial.

In winter of 2011, they were extracted from the residence halls (where their skills were still underused) and posted at the Research Help Desk in the Robert E. Kennedy Library. They joined other desk providers in recording desk transactions on an online form, which allowed for interventions when inaccurate or inadequate answers were supplied. Similarly, verbatim chat transcripts allowed for review of transaction quality. This model entirely exceeded expectations and, by fall 2012, LibRATs staffed the desk for all but ten hours per week. By spring 2012, to take full advantage of the chat transcripts and online reference forms, procedures were in place for all desk personnel to read and annotate weekly printouts, thus distributing knowledge across the entire team. The experience with the LibRATs at Kennedy Library confirms the experience attested elsewhere that motivated and properly trained undergraduates can provide quality reference.

Building on the success of the LibRATs as reference providers, in spring 2011 they were launched experimentally into leading basic information literacy sessions. These were "single-shot" sessions for lower-division English and communications courses targeted as part of a programmatic information literacy effort. The courses all had assignments requiring research for papers or speeches, and the course instructors timed the sessions to the assignments. Two LibRATs were first enlisted. After observing sessions as led by a librarian, and following discussions of key objectives and effective teaching behaviors, they led several sessions as a duo. Online evaluations run at the end of each session showed them to be faring comparably to the librarians. The trial LibRATs soon launched into solo teaching and led a total of thirteen sessions during the first experimental quarter. As informal

feedback from instructors was also positive, the remaining LibRATs engaged in similar training, but this time with additional coaching from the two LibRATs who had already taught. This positioned the library for expanded instructional capacity in the fall.

The extended reach immediately exceeded expectations. In fall 2011, a team of LibRATs and librarians delivered 59 sessions to the targeted courses. Of these, 40 were led by LibRATs. By comparison, in fall 2010, with only two librarians leading sessions, a total of 43 basic instructional sessions had been delivered. This hybrid model distributed the teaching in a sustainable manner, and during the fall-winter-spring sequence 140 sessions were delivered, 97 led by LibRATs, with a total of 3,080 student participants in that period.

The success in the inaugural year of peer-led sessions was not measured solely by quantity and reach. In addition to formative assessment through informal conversations with instructors and faculty throughout the year, at the end of fall quarter, to make any corrective improvements, faculty were queried for anonymous feedback through an online survey. Nearly half (11 of 24) invitees responded. Responses to the ten 5-point Likert scale statements are shown in table 1. Fully 102 of 111 total responses fell in the Agree and Strongly Agree categories, with only 7 responses in Neutral or Disagree, and none in Strongly Disagree. Scores for statements linked directly to session content, such as identifying and finding books (S.2) and finding articles in databases (S.3) had mean scores of 4.5. Mean scores for statements that addressed issues reaching beyond the class session itself were also encouraging. The mean was 4.5 for this statement: "*The session(s) helped my students find higher quality sources for their paper,*" (S.6); while 4.1 was the mean for the artifact-based statement "*The session improved the quality of my students' papers.*" (S.7) Not as encouragingly, the two lowest mean scores

pertained to LibRAT performance: one to the performance as directly rated by the faculty (3.9) (S.8) and the lowest of all to how the faculty felt their *students* responded to the LibRATs (3.6) (S.9). On the very encouraging side, the statement *"I would recommend these sessions to my peers"* had the highest mean score at 4.7, and a binary yes/no question *"From your perspective, would you recommend that all Cal Poly students attend library instruction sessions?"* received 10 out of 11 "Yes" responses. A potential objection to these results is that the return rate (.458) does not exclude a bias against those who might have been disinclined to respond because they felt negatively about the sessions. However, independent corroboration of the positive responses can be seen in fall 2012 demand for the sessions, exceeding that of 2011 by 28 percent (76 vs. 59), driven by positive word of mouth between English instructors, and by the express endorsement of the faculty member responsible for the English Department's lower-division writing courses.

Online surveys administered to students at the end of the instructional sessions allowed for both formative and summative assessment in the first year. Shortly after teaching a session, each LibRAT was provided with a report for that session. The open-text question *"What helped you the least?"* offered windows into areas for immediate improvement, and four 5-point Likert scale statements allowed for similar adjustments. As seen in table 2, cumulative survey data show the mean scores for the LibRATs improving in each of their first three quarters of instruction for all four Likert scale statements. Not only did the LibRAT mean scores consistently rise, but they were higher than librarian scores for the same statements, as shown in table 3. As seen in table 2, in all quarters, student responses were overwhelmingly favorable to the binary yes/no question *"From your perspective, would you recommend that all Cal Poly students attend library sessions?"* This ranged from a low 92.86

percent "Yes" responses in the first quarter of peer-led sessions to a second quarter high of 97.4 percent "Yes" responses. Such strong student endorsement of peer-led sessions provides clear evidence that participating attendees perceived them as useful and valuable.

The prime virtue in such student-reported qualitative data is that it speaks to the unique and therefore most important component of peer teaching: the affective response of students. If students do not respond favorably to the peer session leaders, or, as in this case, even more favorably than to librarians, then there is no pedagogical gain in having peers lead the sessions. There are interesting inferences one might draw from the discrepancy between the favorable student responses and the faculty perception of student response to the peer session leaders (mean of 3.7), but a fair comparison could only be made if the students had been asked exactly the same question; unfortunately, this was not done. Nonetheless, a clear majority of the qualitative data gained in the first year of the instruction program establishes the positive response of faculty and, more important, of the students. Both sets of responses lend preliminary credibility to the claim that undergraduates *can* teach basic information literacy.

Limitations, Further Assessment, and Relevance to Other Libraries

The qualitative data by itself does not, however, definitively establish that student learning is taking place in the sessions. To accomplish this, other tools are required. A choice of methodologies exists. Such qualitative measures as presented already—formal and informal feedback from students and instructors, and mixed surveys—have frequently been used in evaluating peer programs in higher education.⁷³ Certain other measures used to assess peer-learning programs are not applicable in this case, however, because the contact is, on the one hand, not enduring or regular and, on the other hand, not targeted to specific

TABLE 1
Faculty Evaluations of LibRAT-led Sessions Fall 2011
Return Rate: (11/24) .458%

Likert Scale Assessments. 5-point Scale. 5 = Strongly Agree; 4 = Agree; 3 = Neutral; 2 = Disagree; 1 = Strongly Disagree	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree	NA	Avg.
<i>S1. The sessions introduced my students to library resources in an engaging way.</i>	4 36.4%	6 54.5%	0 0%	1 9.1%	0 0%	0 0%	4.2
<i>S2. The session(s) helped my students learn how to identify and locate books.</i>	5 45.5%	6 54.5%	0 0%	0 0%	0 0%	0 0%	4.5
<i>S3. The session(s) helped my students learn how to find articles/information in databases.</i>	5 45.5%	6 54.5	0 0%	0 0%	0 0%	0 0%	4.5
<i>S4. The session(s) introduced the notion of "peer-reviewed" articles and journals.</i>	3 27.3%	7 63.6%	0 0	1 9.1%	0 0	0 0%	4.1
<i>S5. The session(s) introduced online help and tools in databases to help my students cite sources.</i>	4 36.4%	6 54.5%	1 9.1%	0 0%	0 0	0 0%	4.3
<i>S6. The session(s) helped my students find higher-quality sources for their papers.</i>	6 54.5%	4 36.4%	1 9.1%	0 0	0 0	0 0	4.5
<i>S7. The session(s) improved the quality of my students' papers.</i>	1 9.1%	10 90.9%	0 0	0 0	0 0	0 0	4.1
<i>S8. My students responded well to the student session leader(s).</i>	3 27.3%	5 45.5%	1 9.1%	1 9.1%	0 0	1 9.1%	3.6
<i>S9. The student session leader(s) did a very good job.</i>	4 36.4%	5 45.5%	1 9.1%	0 0	0 0	1 9.1%	3.9
<i>S10. I would recommend these sessions to my peers.</i>	8 72.7%	3 27.3%	0 0	0 0	0 0	0 0	4.7
Binary YES/NO Question: <i>From your perspective, would you recommend that all Cal Poly students attend library instruction sessions?</i>	YES: 10 90.91%			NO: 9.09%			

TABLE 2 Assessment Averages of LibRAT Led Sessions in First Three Quarters of LibRAT Instruction			
Likert Scale Affective Assessments. 5-Point Scale. 5 = Strongly Agree; 4 = Agree; 3 = Neutral; 2 = Disagree; 1 = Strongly Disagree; 0 = NA	Spring 2011	Fall 2011	Winter 2012
	LibRAT Average 84 Respondents	LibRAT Average 559 Respondents	LibRAT Average 425 Respondents
<i>S1. The session gave me solid understanding of the material presented.</i>	4.35	4.4	4.6
<i>S2. The resources described in this session are relevant to my assignment or research.</i>	4.5	4.6	4.7
<i>S3. The session leader presented information in a way that I could understand.</i>	4.45	4.5	4.6
<i>S4. The session leader encouraged and responded to questions.</i>	4.35	4.6	4.6
Binary Yes/No Question: <i>From your perspective, would you recommend that all Cal Poly students attend library instruction sessions?</i>	YES: 92.86%	YES: 97.4%	YES: 95%

TABLE 3 Comparison of Assessment Averages of LibRAT and Librarian-Led Sessions in Third Quarter of LibRAT Instruction		
Likert Scale Affective Assessments. 5-Point Scale. 5 = Strongly Agree; 4 = Agree; 3 = Neutral; 2 = Disagree; 1 = Strongly Disagree; 0 = NA	Winter 2012	
	LibRAT Average 425 respondents	Librarian Average 200 respondents
<i>S1. The session gave me solid understanding of the material presented.</i>	4.6	4.4
<i>S2. The resources described in this session are relevant to my assignment or research.</i>	4.7	4.5
<i>S3. The session leader presented information in a way that I could understand.</i>	4.6	4.5
<i>S4. The session leader encouraged and responded to questions.</i>	4.6	4.4
Binary Yes/No Question: <i>From your perspective, would you recommend that all Cal Poly students attend library instruction sessions?</i>	YES: 95.06%	YES: 94%

student populations. There is no feasible way, for instance, to tie such limited instructional opportunities to outcomes such as retention, dropout rate, or overall academic achievement.

However, two methodologies frequently used for assessing peer learning programs are clearly applicable: pretests and posttests, and experimental designs using control groups.⁷⁴ (In fact, these tools are often applied for assessing information literacy instruction even when peers are not involved.) Building on the positive preliminary data gleaned through self-reported student and faculty data in the first year of the LibRAT program, other methodologies are currently being employed to support the assertion that undergraduate teaching supports student learning. Pretests and posttests have been implemented in the LibRAT program's second year to frame the beginning and end of the sessions. Some posttest questions are affective items present in the previous survey (as essential tools for improving student teaching), but several content questions related to peer-reviewed journals have been added. The choice of this particular content emerged in response to faculty suggestions that more stress be laid on that component of the instruction. Cumulative data gathered in this way should reflect or refute impact on student learning.

Simultaneously in development for the program's anticipated third year is an effort in authentic assessment involving control groups and evaluation of student artifacts. This collaborative effort involves librarians, the faculty member responsible for targeted English courses, and several instructors who teach the course sections. As many of the instructors bring multiple sections, it will be possible to create control groups of students who do *not* attend the sessions. The assessment will entail bibliographic analysis, instructor evaluation of *how* the sources are used, with correlative data regarding paper grade, while adjusting for possible distortions as implicated by overall grade point averages.

The question may arise as to whether such peer-teaching initiatives in basic information literacy instruction can be implemented in other academic institutions. The few instances described in the literature review represent a wide range of institutional types. At one end of the spectrum is the University of Florida, which is large and public, with ample graduate programs. Brigham Young University is large and private, with some graduate programs, while Utah State University at Logan is probably the most comparable to Cal Poly in size and mission. Sliding to the other end of the spectrum are the University of Maine at Farmington, a public liberal arts college with only 2,000 students, and Wabash College, a private, all-male liberal arts college with less than 1,000 students. Though most of the programs we have seen were limited in scale and scope, the responsible parties were uniformly satisfied with the results, which suggests that such efforts could succeed if investment were put toward scaling them up. The most directly comparable instruction program is that of Brigham Young University, clearly viewed as successful by those responsible for it. No program, of course, has universal application, and every campus is unique in some respects, but it seems that a justifiably large undergraduate population and administrative support for information literacy instruction should be sufficient for successfully implementing peer-led sessions.

Conclusion

In his 1993 book, *What Matters in College*, Alexander Astin asserted that a "student's peer group is the single most potent source of influence on growth and development during the undergraduate years."⁷⁵ A decade later, Pascarella and Terenzini, in their exhaustive, two-volume, *How College Affects Students*, noted that a "consistent body of research indicates that students' peers play a substantial role in their general cognitive growth and intellectual development

in college.”⁷⁶ Various methods of peer learning have proven effective, and many institutions in higher education are capitalizing on peer learning dynamics for outcomes of “student learning, attitudes and behaviors.”⁷⁷

Academic libraries should not miss this boat. Peers can communicate with peers in ways that are simply unavailable to librarians. To view a library and its resources as a unique and sequestered campus domain is simply inadequate, for students do not leave their lives at the door when they walk into the building or land on the website. Peer reference and instruction providers can create contiguity between student life as lived and library resources and services and can leverage cognitive and affective learning benefits by virtue of being peers.

The literature provides several examples of viable peer reference. There

are fewer examples of undergraduates leading information literacy sessions, and these have provided minimal assessment data. Qualitative data gathered in evaluating the LibRAT program give preliminary support to the pedagogical efficacy of peer-led sessions. Further assessment is underway to provide further qualitative and quantitative data. However, replication of this model at other applicable institutions, and proper assessment to measure student learning, are still needed to place its pedagogical validity on an irrefutable foundation. It is my hope that other libraries will see the value of this model, embrace it, and assess it. According to this model, the role of the librarian is not to lead every instruction session or answer every question but, rather, to provide the training and tools so that peer providers can serve as optimal vehicles for student learning.

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