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Notes

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Psychology Research at Liberal Arts Colleges

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To assess the magnitude and scope of journal publications by faculty at liberal arts colleges, we used PsycLIT to compile a list of publications from 1984 to 1993 for which the first author's affiliation was among the 161 schools classified as liberal arts colleges by the Carnegie Foundation. We ranked schools by the total number

of pages and articles, with adjustments for quality of journal and department size, to show the extent of journal publications from liberal arts colleges. Also, we broadly assessed what kind of research at liberal arts colleges resulted in journal publications by determining the journals that published the articles and the subject classifi-

cation of the articles. Finally, we showed that mentoring students correlates with research output in the form of published journal articles.

Because research is arguably the primary mission of faculty at research universities, it is not surprising that an extensive literature ranks university psychology departments based on publication rates in all psychology journals (e.g., Colman, Grant, & Henderson, 1992–1993; Endler, Rushton, & Roediger, 1978; Rushton, 1989) or a particular subset of journals (e.g., Colman, Garner, & Jolly, 1992; Cox & Catt, 1977; Howard, Cole, & Maxwell, 1987). Because faculty at liberal arts colleges traditionally have seen themselves primarily as undergraduate teachers and only secondarily as researchers or scholars (Ladd & Lipset, 1975), psychology research at liberal arts colleges has not received as much focus as has research in university psychology departments (a recent exception is Dunn & Zaremba, 1997).

McCaughy (1994) argued that select liberal arts colleges have dramatically increased their emphasis on scholarly activities, such as publication rate and quality, in faculty evaluation and promotion. Nearly half of the liberal arts faculty McCaughy surveyed at select national liberal arts colleges indicated that “their primary interests leaned more toward research [than toward teaching]” (p. 39) and 90% believed it was difficult to attain tenure without research (cf. Boyer, 1990; Ladd & Lipset, 1975; Magner, 1996).

Rankings that reflect research productivity of liberal arts college faculty provide important information to complement existing data on university faculty productivity. Liberal arts institutions generally do not have the same resources available to support research as do PhD-granting institutions. Also, faculty often experience different distributions of teaching, service, and research demands at liberal arts colleges compared to graduate training universities (e.g., Champion & Champion, 1973; Rich & Jolicoeur, 1978).

This study complements McCaughy’s (1994) work and studies examining research publication in other fields by liberal arts college faculty (Bodenhorn, 1997; Hartley & Robinson, 1997). Whereas McCaughy limited his study to 24 schools and looked at the social sciences and humanities as a whole, our study focused on the field of psychology. We examined all journal articles cataloged in the PsycLIT database with first authors who were faculty at liberal arts colleges. We limit our discussion to journal publication rates for first authors because PsycLIT lists affiliation only for the first author.

Our study addresses several important unanswered questions. First, to what extent do faculty at liberal arts colleges publish as first authors in psychology journals? Second, are research publications in journals a characteristic of faculty not just at highly rated liberal arts colleges but at all liberal arts colleges? Third, does the area of research published by these faculty show an interesting pattern? For example, faculty may not have the funds, equipment, space, and access to special populations to carry out research in certain subdisciplines (e.g., see Gallup & Eddy, 1990). By examining which journals published research with liberal arts college faculty as first authors and by looking at the subject classifications of the articles, we gathered broad information about research foci. Finally, do the journal publication rates of liberal

arts college psychology faculty have an impact on teaching and student mentoring?

To answer these questions, we generated a comprehensive ranking of all liberal arts colleges based on publications cataloged by the PsycLIT database from 1984 to 1993. This ranking indicated which colleges had faculty who were first authors of research published in the journals listed by PsycLIT. Thus, the ranking serves as one indicator of research productivity by liberal arts faculty. We also listed the number of pages published in each journal and the American Psychological Association (APA) subject classification codes for the articles, as indicators of the research topics pursued by this set of authors. In addition, we examined the correlation between the number of pages published with first authors from each institution and the number of students from that institution going on to receive a PhD in psychology. The latter is one measure of successful mentoring and student training at liberal arts colleges, and we predicted that colleges with more publications would be likely to have more graduates receive PhDs.

Our rankings of liberal arts colleges provide information to psychology departments, institutions, and administrators on how their faculty’s first-authored journal publication rates match those at similar institutions. Although some might argue that ranking liberal arts colleges by journal publication rate devalues the importance of teaching, McCaughy (1994) argued the contrary and demonstrated a small positive correlation between scholarly activity and teaching effectiveness at liberal arts colleges. Boice (1984, 1992) argued that the positive correlation between scholarly work and teaching effectiveness exists at colleges of all types. Faculty can use research to enhance teaching by presenting the latest discoveries in class and by involving students in theses and research projects. Research experience provided to undergraduate students may better prepare them for graduate school. The rankings also may be useful as one indicator of the psychology research environment at liberal arts colleges to new PhDs contemplating teaching at such colleges. Finally, the numbers presented here should be of use to new faculty members who, according to Boice (1992), often have unrealistic expectations of the amount of research productivity expected at their institutions.

Method

We used the PsycLIT database to compile a list of journal articles from 1984 to 1993 for which the first author’s affiliation was one of the 161 schools classified as liberal arts colleges by the Carnegie Foundation (Carnegie Foundation for the Advancement of Teaching, 1987). Although PsycLIT also includes dissertations, literature reviews, and papers in symposia and conference proceedings, we based our rankings on only journal articles. Searching for those institutional affiliations yielded, for each college, all journal articles for which the institution was the affiliation of the first author. The author affiliations reported in PsycLIT do not indicate department affiliation, so we counted all publications by authors who were at the college at the time the article was published.

We collected psychology department size information either from college catalogs or from colleges' current World Wide Web pages. We used the catalog closest to the 1994–95 academic year that we could obtain. We did not count faculty identified by the school as visiting or part time.

From the *NSF Doctorate Records File* (1996), we obtained data on the number of PhDs in psychology granted between 1989 and 1994 to the graduates of each liberal arts college in our sample. We note that the students earning their PhDs in the time range we surveyed are not necessarily the same students educated during the period when the published research was conducted. However, because it was not possible to ascertain how many students are enrolled currently in PhD programs and because enrollment does not guarantee that a PhD will be granted, we used the National Resource Council's data.

Results

We ranked all 161 schools in the database that resulted from our PsycLIT search. The search resulted in a list of articles in more than 500 journals written by more than 1,000 first-author faculty at those institutions.

Before presenting the ranking data, we note limitations of the rankings. Because PsycLIT is the database, the results may not reflect the total research output of the psychology department faculty at a given institution. In particular, liberal arts faculty may also publish textbooks, academic monographs, and articles in both nonacademic journals and interdisciplinary journals. Also, faculty at liberal arts colleges may be more likely to collaborate as second authors with colleagues at universities. Additionally, because PsycLIT does not list departmental affiliation for authors, some of the primary authors may not have been psychology department faculty. Thus, the rankings best reflect the amount of journal-published psychology research at each institution. However, the rankings likely provide a good indication of the amount of research published in journals by psychology faculty. Finally, because we used authors' affiliations at the time of publication, our ranking is a measure of the research originating from the institution during that time period and not a measure of the output of the current faculty.

Table 1 presents five rankings: (a) rank based on the total number of pages published with primary-author affiliations for the institution among all journals reported in the PsycLIT database, (b) rank based on the total number of articles from all journals in the PsycLIT database, (c) rank based on the number of pages published in APA journals, (d) rank based on the number of pages weighted by the citation impact ratio for the journal in which the article appeared (see Rotton, Levitt, & Foes, 1993; cf. Feingold, 1989), and (e) rank based on the total number of pages per psychology department faculty member at each liberal arts college. Rotton et al. reported citation impact ratio as a quality assessment for psychology journals. They took most of their ratios from Feingold, who defined the citation impact ratio as the "number of citations a journal's articles for a year received in the social science literature per year over the following two years divided by the number of articles it had published during that year" (p. 961). Because departments at liberal arts colleges

are small, adding one or two full-time faculty to a department may have a substantial impact on the rankings adjusted for department size. Hence, we recommend caution in interpreting the information in the adjusted rankings. Only the top 50 schools ranked by pages published appear here; the rest of the table is available from the authors.

We provide rankings both by number of pages published and by number of articles published because some journals publish brief reports, whereas other journals only accept substantial manuscripts. A high number of articles may in some cases indicate different research efforts if those articles are short rather than long.

The data used to generate Table 1 reveal a number of interesting patterns. The psychology journal publications were highly concentrated in a few schools. Twenty-five percent of the pages published in journals listed by PsycLIT had first-author affiliations at the top 7 colleges. The top 21 colleges accounted for over half the pages published. In contrast, the lowest 39 colleges accounted for less than 2.5% of all the pages published. The 69 lowest ranked colleges averaged less than one article per year. Forty colleges had fewer than five psychology publications; 10 colleges had none. Nearly 95% of liberal arts colleges were listed as first-author affiliation on at least one journal article in the PsycLIT database, indicating that publication of research is widespread, if not frequent, at liberal arts colleges. The concentration of psychology journal publications among faculty from a few colleges is consistent with McCaughey's (1994) argument that the shift in emphasis toward scholarly activity at liberal arts colleges is more pronounced at some schools than at others.

Publications were also highly concentrated among authors. Of the 1,535 authors in the sample, 257 (16.7%) were responsible for half the articles, and 63 (4.1%) were responsible for 25% of the articles. Only 28 (1.8%) authors had 10 or more articles; these 28 authors were responsible for 16.9% of the publications. This result agrees with McCaughey's (1994) finding that scholarly activity among social sciences and humanities faculty at liberal arts colleges was highly concentrated among individual faculty members. Our results also are similar to the findings for research publication productivity at universities (e.g., Endler, 1977; Endler et al., 1978; Rushton & Endler, 1977).

To facilitate comparison of our results with previous rankings of research productivity that examined only APA journal publications (e.g., Cox & Catt, 1977; Howard et al., 1987), we recomputed the liberal arts college rankings based only on publications in the 18 APA journals listed in PsycLIT. Rankings by publication in APA journals are interesting because, as Colman et al. (1992–1993) reported, "performance estimates based in restricted journal sets correlate quite highly with each other and with more comprehensive indices of performance, including citation counts" (p. 367).

Quite a few colleges' faculty had PsycLIT-listed APA journal publications: 77 schools (41.8% of the 161 colleges) had at least one publication in an APA journal, and 21 schools (13%) had five or more APA journal publications in the 10 years of our sample. Publications in APA journals were more highly concentrated than were overall PsycLIT publications. The top 10 colleges in column 3 of Table 1 were responsible for more than 42% of the articles in APA journals compared

Table 1. Rankings of Liberal Arts Colleges by Publications in all PsycLIT-Listed Journals Between 1984 and 1993

College	Pages		Articles		APA Pages		Citation-Impact Adjusted		Department-Size Adjusted	
	N	Rank	N	Rank	N	Rank	N	Rank	N	Rank
Bryn Mawr College	1,696	1	128	2	64	11	70.62	8	188.44	1
Smith College	1,686	2	122	3	24	40	42.40	23	88.73	10
Wellesley College	1,406	3	117	4	207	1	141.58	1	66.95	16
Lewis & Clark College	1,027	4	82	7	42	22	43.45	21	171.16	2
Wesleyan University	1,008	5	91	6	118	5	109.12	3	91.63	7
Swarthmore College	977	6	80	8	165	3	125.53	2	97.70	6
Williams College	960	7	95	5	176	2	90.11	5	80.00	13
Pomona College	812	8	47	21	30	35	60.52	12	90.22	8
Richard Stockton State College	760	9	292	1	0	79	25.71	40	76.00	14
Amherst College	712	10	48	18	37	26	46.58	18	118.66	5
Hamilton College	689	11	49	16	39	25	19.24	25	86.12	11
Connecticut College	668	12	55	11	46	20	60.41	13	83.50	12
Colgate College	658	13	64	9	62	12	48.39	17	65.80	17
Vassar College	654	14	48	18	60	15	29.43	36	43.60	39
Mount Holyoke College	645	15	47	21	115	6	84.13	6	49.61	29
Bucknell University	622	16	64	9	66	10	41.28	24	62.20	18
Franklin & Marshall College	621	17	51	15	25	39	60.74	11	62.10	19
Barnard College	617	18	55	11	137	4	61.58	9	61.70	20
Oberlin College	596	19	44	25	29	36	76.82	7	59.60	21
Gettysburg College	584	20	54	14	103	7	95.14	4	58.40	23
College of the Holy Cross	579	21	48	18	62	12	52.78	16	44.53	33
Skidmore College	553	22	55	11	10	61	43.17	22	50.27	27
Lafayette College	485	23	43	26	61	14	87.81	14	53.88	24
Pitzer College	481	24	46	23	44	21	26.35	39	43.72	38
Haverford College	451	25	33	32	48	19	44.26	19	90.20	9
St. Lawrence University	451	25	46	23	26	38	93.04	26	45.10	31
Reed College	450	27	41	27	76	9	62.32	10	50.00	28
University of Puget Sound	445	28	39	28	9	65	5.21	74	44.50	34
Trinity College	438	29	33	32	84	8	35.50	31	36.50	51
Denison University	412	30	34	31	32	33	16.72	47	34.33	53
Hampshire College	367	31	21	46	40	24	56.68	15	122.33	3
Mills College	358	32	30	35	0	79	29.54	35	119.33	4
Wheaton College, IL	353	33	35	30	19	47	15.52	51	18.57	85
Kenyon College	344	34	37	29	54	17	28.22	37	38.22	48
Middlebury College	342	35	23	41	19	47	7.68	65	68.40	15
Occidental College	314	36	21	46	0	79	0	114	44.85	32
Claremont McKenna College	312	37	25	38	24	40	19.51	43	24.00	69
Wheaton College, MA	298	38	26	36	13	53	15.79	49	37.25	50
Eckerd College	294	38	26	36	36	29	33.33	33	58.80	22
Ohio Wesleyan University	284	40	31	34	60	15	36.78	28	31.55	55
St. Olaf College	273	41	21	46	3	77	16.28	48	19.50	82
Colby College	269	42	22	43	19	47	32.62	34	38.42	47
Willamette University	267	43	17	58	22	44	36.75	29	44.50	34
Lake Forest College	260	43	21	46	19	47	19.28	44	43.33	40
Union College	246	45	24	39	33	31	37.76	27	22.36	76
Bowdoin College	237	46	20	51	19	47	15.67	50	39.50	44
Beloit College	231	47	23	41	0	79	12.56	55	38.50	46
Hollins College	222	48	16	62	9	65	5.02	75	44.40	36
Lawrence University	218	49	16	62	27	37	17.81	38	31.14	57
Wittenberg University	216	50	24	39	8	68	8.02	63	30.85	58

Note. APA = American Psychological Association.

to 34% of all articles from the top 10 schools in column 1 of this table. Likewise, the top 20 colleges in column 3 were responsible for over 64% of APA articles whereas the top 20 colleges in column 1 produced 49% of all articles.

Rankings using total number of pages and total number of articles are fairly consistent. The ranking that controls for the citation impact ratio shows some small changes. Four of the top 25 schools in total number of pages are not ranked in the top 25 schools by citation-impact adjusted pages. Also, some small departments with a modest number of publications ranked higher on the fifth scale that adjusts for the number of psychology faculty.

Because many liberal arts colleges provide fewer resources to support research than most research universities, we examined the topic areas of faculty publication. We expected to find fewer journal publications in fields such as physiological

psychology, which often require costly equipment and extensive facilities, than in less costly fields such as social psychology. We used two indicators of topic or field within which faculty research publications fall: the journals in our sample and the PsycLIT field classification codes.

Table 2 presents the 50 journals publishing the most pages from our sample. This ranking indicates that liberal arts faculty publish substantially in social psychology, with 3 of the top 6 journals being *Sex Roles*, the *Journal of Personality and Social Psychology*, and the *Journal of Applied Social Psychology*. Furthermore, 10 of the top 50 journals deal with social issues. *Smith College Studies in Social Work* ranks third and *Teaching of Psychology* ranks 34th. Although most of the research published by our sample's authors does not appear in APA journals, 8 of the 18 APA journals are in the top 50 journals for liberal arts faculty, including the sec-

ond-ranked journal, the *Journal of Personality and Social Psychology*. The rankings in Table 2 thus support the prediction that more publications with first authors from liberal arts colleges would fall in journals covering research in fields demanding fewer resources.

We also examined the fields in which the liberal arts faculty published research. Table 3 shows the distribution of pages across the two-digit PsycLIT classification codes. The liberal arts faculty have interests in social psychology, developmental psychology, and education (classroom dynamics, literature and fine arts, curriculum, learning and motivation, history and systems, educational and vocational counseling). The data in Table 3 also support the prediction that many research publications with first authors who are lib-

Table 2. Number of Pages per Journal for the Top 50 Journals

Journal Title	No. of Pages
<i>Sex Roles</i>	679
<i>Journal of Personality and Social Psychology</i> ^a	661
<i>Journal of College Student Psychology</i>	610
<i>Psychological Reports</i>	582
<i>Smith College Studies in Social Work</i>	537
<i>Physiology and Behavior</i>	436
<i>Journal of Applied Social Psychology</i>	412
<i>Journal of Experimental Child Psychology</i>	397
<i>Perceptual and Motor Skills</i>	391
<i>Perception and Psychophysics</i>	365
<i>Child Development</i>	359
<i>Behavioral Neuroscience</i> ^a	330
<i>Political Psychology</i>	330
<i>Personality and Social Psychology Bulletin</i>	328
<i>Journal of Experimental Psychology: Learning, Memory and Cognition</i> ^a	322
<i>Journal of Personality</i>	313
<i>Memory and Cognition</i>	299
<i>Journal of Social Issues</i>	292
<i>American Ethnologist</i>	274
<i>Animal Behavior</i>	256
<i>Psychological Record</i>	254
<i>Developmental Psychology</i> ^a	249
<i>Psychology of Women Quarterly</i>	242
<i>Journal of Social Psychology</i>	241
<i>Journal of Memory and Language</i>	231
<i>Bulletin of the Psychometric Society</i>	230
<i>American Anthropologist</i>	225
<i>Developmental Psychobiology</i>	222
<i>Medical Anthropology</i>	222
<i>Journal of Experimental Psychology: Human Perception & Performance</i> ^a	221
<i>Ethos</i>	220
<i>Adolescence</i>	218
<i>Basic and Applied Social Psychology</i>	215
<i>Animal Learning and Behavior</i>	208
<i>Teaching of Psychology</i>	207
<i>Journal of Experimental Psychology: Animal Behavior Processes</i> ^a	196
<i>Signs</i>	194
<i>Brain Research</i>	192
<i>Cognitive Psychology</i>	191
<i>Law and Society Review</i>	187
<i>Personality and Individual Differences</i>	186
<i>Journal of Experimental Social Psychology</i>	183
<i>Journal of Social Behavior and Personality</i>	182
<i>American Psychologist</i> ^a	174
<i>Pharmacology, Biochemistry and Behavior</i>	171
<i>Hormones and Behavior</i>	170
<i>Journal of the Experimental Analysis of Behavior</i>	165
<i>Journal of Psychology and Theology</i>	164
<i>Child and Adolescent Social Work Journal</i>	156
<i>Journal of Genetic Psychology</i>	156

^aAmerican Psychological Association journal.

Table 3. Pages Published by Subject Classification Code (Two-Digit)

Code	Name	No. of Pages
2800	Developmental psychology	4,422
2300	Human experimental psychology	4,268
2900	Social processes and social issues	4,027
3200	Psychological and physical disorders	3,568
3300	Health and mental health treatment and prevention	3,141
2500	Physiological psychology and neuroscience	2,713
3500	Educational psychology	2,566
2400	Animal experimental and comparative psychology	2,043
3000	Social psychology	1,957
3100	Personality psychology	1,460
2200	Psychometrics and statistics and methodology	1,225
3400	Professional psychology and health personnel issues	731
3600	Industrial and organizational psychology	685
2100	General psychology	628
2600	Psychology and the humanities	601
2700	Communication systems	468
4200	Forensic psychology and legal issues	462
4000	Engineering and environmental psychology	352
3700	Sport psychology and leisure	206
3900	Consumer psychology	150
4100	Intelligent systems	80
3800	Military psychology	38

eral arts college faculty cover research topics requiring fewer resources.

Research and Teaching

Psychology research at national liberal arts colleges, valuable for its contributions to understanding behavior, is additionally valuable when it contributes to faculty teaching effectiveness. One readily available measure of teaching quality is the number of students from a liberal arts college who go on to receive graduate degrees. McCaughey (1994) discussed the educational research that "links certain kinds of academic environments with one kind of good teaching, 'mentoring,' teaching that encourages students to aspire to the professional study of the subject and eventually to teach it" (p. 94). We expected to find a link between a liberal arts college faculty's research productivity in the form of journal publications and the achievements of that faculty's students in receiving PhDs in psychology (cf. Willis & Diebold, 1997, who ranked psychology graduate programs by the number of mentors they produce). One reason we expected such a link is that faculty research at liberal arts colleges is likely to involve students, and graduate programs value prior research experience highly (Purdy, Reinehr, & Swartz, 1989) and thus are likely to admit such students.

We estimated a simple linear regression of the number of PhDs received by the graduates of each liberal arts college on the total number of published pages by the faculty of that college. We controlled for the quality of the college as measured by the *U.S. News & World Report* ranking ("America's Best Colleges," 1995) because more highly rated colleges may attract better students more capable of graduate work. The regression equation was as follows:

$$\text{PhDs} = 29.06 + 0.03 * (\text{total pages}) - 0.21 * (\text{U.S. News Rank}),$$

(8.37) (6.48) (-5.45)

yielding $r^2 = .50$ for $n = 161$ (t scores in parentheses; all are reliable at or below $p < .05$). (Hartley & Robinson, 1996, reported a similar regression without controlling for the quality of the academic institution; including the control improves the fit of the regression and reduces the implied importance of the number of publications.)

These results support a connection between the accomplishments of students, in the form of earning a PhD in psychology, and faculty research output, in the form of number of pages published by faculty at the colleges that trained these students. That is, the number of PhDs as a measure of teaching effectiveness was related to an indicator of research productivity, the number of journal pages published. This result supports claims of a link between teaching quality and publication-based rankings (McCaughey, 1994).

Discussion

We have presented a complete ranking of liberal arts colleges based on publications in all journals listed in the PsycLIT database between 1984 and 1993. This ranking addressed four questions: (a) Do liberal arts college faculty publish as first authors of psychology journals; (b) is journal publication a characteristic of all liberal arts colleges or only a subset; (c) do the fields in which most research is published reflect research resource limitations at liberal arts colleges; and, (d) does the number of published pages, as an indication of research activity, correlate with the number of PhDs earned by students from liberal arts colleges, as an indication of teaching and mentoring activity at those colleges?

Indeed, liberal arts college psychology faculty do publish as first authors in journals, but more first-authored publications were associated with a few top-ranked colleges. Also, a minority of psychology faculty wrote many of the articles. This finding affirms Ladd and Lipset's (1975) conclusions that a few faculty members authored a large number of publications (their survey was not limited to journal articles but reflected all academic publications). Ladd and Lipset also reported that the majority of faculty they surveyed did not publish at all, or published only rarely.

The rankings lent some support to McCaughey's (1994) contention that there are two tiers of liberal arts colleges. At the top-ranked colleges, research productivity in the form of first-authored journal publications both overall and in APA journals is high. However, the majority of liberal arts colleges had few psychology faculty who were first authors.

The journals in which most research was published and the PsycLIT subject classification codes showed that our sample's publishing tends to be in fields requiring fewer resources. This result suggests that the research environment at liberal arts colleges attracts faculty who can pursue their research given the available resources or that faculty adjust to the resources available to them.

Finally, we found that the number of psychology publications listing a college as first-author affiliation correlated with the number of that college's graduates who earned PhDs in

psychology during the period examined. This result suggests both that more research on the connection between teaching and research would be informative and that the exercise of ranking schools by publications may be useful even to those who think that teaching and mentoring at liberal arts colleges are the most important activities at those institutions.

We believe that the emphasis on teaching and faculty-student interaction at liberal arts colleges is one of the most positive aspects of student training at such institutions. We believe that this interaction can and does extend to research. We also believe that many faculty continue to have teaching and student mentoring as a priority. For some of these faculty, student training may be augmented by those faculty's research productivity. However, many psychology faculty at liberal arts institutions are either unable or unwilling to publish as first authors on journal publications. This result indicates the need for more research investigating whether and where psychology faculty do publish, to find out whether they publish in other outlets, and to see whether such publication enhances teaching and student mentoring.

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Notes

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Using Community-Based Research Projects to Teach Research Methods

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In this article, we describe the elements comprising a community-based research project conducted as part of an undergraduate research methods course and the project's positive impact on student learning. A community-based project provides a unique opportunity for students to learn the methodology of psychology, directly experience the research process, and make a significant societal contribution.

Most psychologists recognize the importance of involvement in the research process as a means to learn the scientific method, a view that researchers have supported empirically (Conrad & Hedin, 1991; Lehman & Nisbett, 1990; VanderStoep & Shaughnessy, 1997). Accordingly, undergraduate students may assist faculty with their research or conduct independent research projects (Durso, 1997; Kierniesky, 1984). However, these research experiences often occur late in the undergraduate career. We believe that students should become involved in research in

the introductory research methods course. Such early exposure will prepare students to take advanced courses in the discipline, to serve as research assistants, and to pursue an independent senior project. Including hands-on research experience in a methods course has demonstrated benefits, including improved understanding of methodological concepts, enhanced critical thinking skills, and greater interest in course material (Durso, 1997; Evans, Rintala, Guthrie, & Raines, 1981; Markus, Howard, & King, 1993).

However, given time constraints, large enrollments, and students' lack of research expertise, including research is a difficult task for the instructor. Instructors have developed course research projects in ways that address these problems, most often by circumventing one of the steps in the research process. For example, students may analyze existing data sets, propose rather than conduct research, perform computer-simulated experiments, or conduct group projects. Although these solutions alleviate some of the obstacles to