The Immediate and Long-Term Impact of Practicum Experiences on Students

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ABSTRACT

Many academic programs in public policy and public administration offer students practicum or capstone experiences that provide real-world training in their disciplines. Although past researchers have assessed the immediate benefits of these experiences for students, we examine their impact on students' professional lives after graduation. Our results are based on surveys sent to all students who participated in the Public Policy Undergraduate Practicum Program at Stanford University over a five-year period. We find that taking the practicum course helped students improve both policy analysis skills (e.g., research design, policy writing) and general professional skills (e.g., project management, oral presentation). Students report making career decisions based on their practicum experiences, and finding their practicum skills useful across jobs in many industries. Overall, these results provide additional evidence for the benefits of offering students applied practicum experiences.

Many academic programs in public policy and public administration offer students practicum or capstone experiences that provide real-world training in their disciplines. In their analysis of 65 Master of Public Policy (MPP), Master of Public Administration (MPA), and related degree programs, Garris, Madden, and Rodgers (2008) found that 68% of the programs offered a practicum component, and 72% of these degree programs required students to take it. Several of these practicums have been described in detail. For example, Cohen, Eimicke, and Ukeles (1995) discuss the "Workshop Sequence" at Columbia University's School of International and Public Affairs. Flynn, Sandfort, and Selden (2001) and Allard and Straussman (2003) describe practicum offerings

at Syracuse University's Maxwell School, and Smith (2005) documents the creation of the graduate capstone requirement of the Wagner School at New York University (NYU).

Practicum courses have been shown to benefit both client organizations and students. To assess client benefits, Schachter and Schwartz (2009) surveyed client organizations participating in the NYU Wagner School's Capstone Program for MPA and MUP (Master of Urban Planning) students. They find that most clients are highly satisfied with the capstone projects, reporting that they would have a long-term impact on their organizations. Based on a survey of client organizations involved in Binghamton University's MPA

practicum projects, Campbell and Lambright find that most of the clients have used the students' practicum work "to address an organizational/departmental and/or community need" (2011, p. 72). Client organizations also expressed satisfaction with MPA practicum projects at the University of North Carolina (UNC) at Chapel Hill (Whitaker & Berner, 2004). In addition, past studies have identified a range of benefits to community organizations from "service learning" projects—a wide array of experiential learning projects involving community service that includes practicum projects conducted for community organizations (Jacoby & Associates, 1996). (For a review of the literature on how service learning benefits community organizations, see Campbell and Lambright, 2011).

Regarding the impact on students of undertaking practicum projects, Villaneuva, Hovinga, and Cass (2011) present results from surveys taken by MPH practicum students at Drexel University's School of Public Health. In these surveys, "Students reported high degrees of satisfaction & value in learning by doing, increased ability addressing real world problems, and commitment to working in the community" (2001, p. 337). Along with these benefits, MPA practicum students at UNC–Chapel Hill reported improved skills in team and project management and in resolution of value conflicts (Whitaker & Berner, 2004). Moreover, at NYU's Wagner School, "it is not uncommon for at least one member of a project team to be offered a job by the client" (Smith, 2005, p. 200). Some of these benefits, as well as others, were also found in practicum courses offered by the political science departments at Eastern Michigan University (Bernstein, Ohren, & Shue, 2003) and California State University at Chico (Turner, 2014†). Additional studies have identified benefits to students of other types of service-learning experiences (e.g., Markus, Howard, & King, 1993; Wells, 2006).

Although practicum experiences have been shown to affect students in the short term, their impact on students *after* graduation has not been evaluated. Moreover, little research has

been conducted on the effectiveness of practicum courses at the undergraduate level. We expand upon prior work by showing the effects of Stanford University's Public Policy Undergraduate Practicum Program on students' skills and their postgraduate lives. Our results are based on surveys distributed as part of a five-year review of the program. Surveys were sent to all students who had participated in the undergraduate practicum program during its first five years.[1]

After describing the undergraduate practicum program and student survey, we present our findings regarding the impact of the practicum on students' skills and its usefulness to students in their day-to-day work. We also address the role of the practicum in the students' career paths and job searches. Lastly, we present the students' recommendations for improving the practicum program and discuss implications of our study.

STANFORD'S PUBLIC POLICY UNDER-GRADUATE PRACTICUM COURSE

Although originally optional, Stanford's Public Policy Program now requires its seniors who are not writing honors theses to take a one-quarter practicum course to help them improve and apply their policy analysis skills. Before taking the course, students should have completed their prerequisite and core courses across social science disciplines, including economics, statistics, and political science. This earlier coursework is designed to teach students research methods in the context of public policy issues.

During the practicum course, students work in small teams to analyze a policy issue for a local government agency or nonprofit organization. For example, students have evaluated options for eliminating overcrowding in an elementary school for the Mountain View Whisman School District, ways to increase the efficiency of fire safety inspections for the Palo Alto Fire Department, and alternatives for improving the energy efficiency of non-owner-occupied commercial buildings for Joint Venture Silicon Valley's Public Sector Climate Task Force.

Each quarter the course is led by one of several Public Policy faculty members, who also works with the client organizations to set up the projects before the course begins. The director of the practicum program mentors new instructors. To help guide project selection, instructors often survey students before the course about the issue areas they would prefer to address (e.g., education or environmental policy). Within the students' preferred issue areas, instructors seek projects that are sufficiently narrow and well-defined to allow students enough time to gain the specialized knowledge necessary to conduct a rigorous and useful analysis for the client. At the same time, the projects must be complex enough to be academically challenging and to enable students to apply skills they have learned in their previous coursework. The projects tend to involve assessing a policy problem and making recommendations for addressing it, or evaluating a given policy or program and recommending changes to it. Students typically are given some choice among the projects once they are set up.

During the quarter, the students meet three times with their clients and prepare three deliverables for them: a midquarter status report memo, a final report, and a final presentation. The client provides background information on the issue at the first meeting and discusses the status report memo at the interim meeting. At the final meeting, the students present their findings in a formal presentation at the client's organization. Along with client deliverables, students work individually and as a team to complete other assignments, such as devising a project work plan and writing a reflection paper. The assignments are intended to help carry out the project and increase the students' policy analysis skills. The course text is *A Practical Guide for Policy Analysis: The Eightfold Path to More Effective Problem Solving* (Bardach, 2012).

The course is scheduled for three days a week. The instructor meets at least once a week with the full class or with each team individually. Other class time is reserved for the teams to meet with their clients, or by themselves, and

to carry out project tasks that can be difficult to schedule, such as conducting interviews and site visits. Team meetings with the instructor focus on issues specific to each team, while the class meetings cover concerns across projects and general course topics such as research methodology. The instructor provides feedback on outlines and drafts of the client deliverables.

Though the basic format of the course has remained the same since its inception, small changes have been made to enhance the course. To improve efficiency and consistency across instructors, the practicum program director mentors new instructors and has increased the sharing of course materials across instructors. Recognizing the substantial time commitment required by students, the course is now offered for five units of academic credit instead of just three. Scheduling problems have diminished as the course expanded from one to three class periods a week. At least one class period each week is set aside for teams to schedule course-related activities, such as interviews and team meetings. Drafts and presentation slides are now due earlier to give more time for review and revisions. A team-building component was added to enhance team dynamics. It entails devoting a class session early in the quarter to discussing characteristics of high-performing teams, and having each team hold a midquarter session in which the members exchange feedback on each other's performance.

DATA AND METHODOLOGY

To evaluate the impact of the course on students, we sent an e-mail with a link to an online survey to all 55 students who had participated in the undergraduate practicum program during its first five years (2007–2011). Students received two reminders after the initial e-mail. We obtained the students' e-mail addresses from the Public Policy Program and Stanford Alumni Association. Forty-four of the 55 former students responded to the survey, providing an overall response rate of 82% (only six of the respondents did not complete the survey in its entirety). The response rate varied randomly by the graduation year of respondents, ranging from 72% to 100%.

The 26-question survey included closed-ended and open-ended (free response) questions about the students' background and practicum experience, including its impact on them after graduation. The students were also asked for recommendations for improving the practicum program in the future. To help avoid survey bias, our survey was reviewed by an expert in survey methodology. (See the appendix for a copy of the survey.)

Our numerical evaluation questions employed the commonly used 5-point Likert Scale. The most negative ranking was represented by a 1 (e.g., no improvement, not helpful), the middle ranking by a 3 (e.g., moderate improvement, moderately helpful), and the most positive ranking by a 5 (e.g., significant improvement, extremely helpful). This scale enabled us to compute mean ratings in addition to raw numbers. We conducted significance tests to determine whether some differences in mean ratings were statistically significant. Our survey data were used to conduct qualitative analysis as well.

Our study's self-report data has the potential to be positively biased for various reasons. Considering that responses were not anonymous and some respondents had taken the course from the lead researcher, some students may have inflated results to appear more "socially desirable" (Paulhus, 1984, 1991). In addition, some students may have rated their skills higher than they actually are due to the "better than average bias," the tendency to rate ourselves as better than others in most desirable attributes and skills (Guenther & Alicke, 2010; Brown, 2012). However, because this bias would be present for both the pre- and post-practicum ratings, it could not explain why students reported that the practicum significantly increased their skills. We acknowledge that self-report data may lead to some bias in our results, but we find more significant shortcomings in alternative approaches to assessing the impact of the course, such as having students' supervisors or graduate school professors assess their skills after graduation. In addition, there is a

precedent for using self-report data in studies that evaluate outcomes from practicum courses (e.g., Villanueva et al., 2011; Whitaker & Berner, 2004).

IMPACT ON STUDENTS' SKILLS

The practicum course was designed with a focus on improving specific policy analysis skills, such as research design, data analysis, and policy writing. However, we expected that the course would also help students improve general professional skills, such as project and team management. Therefore, in the survey, we asked students about their pre-practicum skill level and any subsequent improvement in these skills that they attributed to the practicum.

Specific Policy Analysis Skills

The course's broad objective is to enable students to improve their ability to apply their policy analysis skills in addressing policy issues. In the process of reaching this objective, we expect students to improve more specific policy analysis component skills, including writing for a policy audience, research design (e.g., determining project scope and methodological approach), and collecting and preparing data for analysis. For students assigned to projects with a substantial quantitative component, we also expect to see an increase in their skills related to quantitative methods (e.g., cost-benefit analysis, regression).

In each of these five skill areas, most students reported that they had *entered* the course with at least moderate skills (a 3.0 rating on our 5-point Likert Scale). The mean ratings fell within a small range from 3.0 (applying policy analysis skills) to 3.4 (writing for a policy audience). The results appear as expected because the students were taking the course after having completed most of the requirements for the Public Policy major.

Students were asked to "Rate any improvement in these skills due to your practicum experience." They reported improvement in all five areas, although the level of improvement varied notably across areas (Table 1). They indicated that the most improvement was in

TABLE 1.
Improvement in Skills Due to Practicum

		(1) No Improvement	(2)	(3) Moderate Improvement	(4)	(5) Significant Improvement	Mean Rating
		Percentage of Students (row percentages)					
Policy Analysis Skills	Applying policy analysis skills to address a real problem	0	0	14	45	41	4.3
	Writing for a policy audience	0	7	17	41	36	4.1
	Research design (e.g., determining project scope and method-ological approach)	2	2	45	36	14	3.6
	Collecting and preparing data for analysis	5	12	36	33	14	3.4
	Quantitative methods (e.g., cost-benefit analysis, regression)	19	29	21	19	12	2.8
General Professional Skills	Team management (i.e., working with others in a team setting)	0	19	12	38	31	3.8
	Communication with clients and other professionals	2	21	14	31	31	3.7
	Project management (e.g., task & time management)	2	21	21	26	29	3.6
	Oral presentation skills	10	24	21	36	10	3.1

Note. $N = 42$.

their general ability to apply policy analysis skills to address a real problem (4.3 mean rating). Regarding improvement in the more specific component skills, the mean ratings were 4.1 (policy writing), 3.6 (research design), 3.4 (data preparation and collection), and 2.8 (quantitative methods). Although students reported the least amount of improvement in quantitative methods, most students worked on projects without a major quantitative component. Respondents who did work on a heavily quantitative project noted greater improvement in quantitative methods than did the other students (3.5 mean rating).

In interpreting the students' improvement results, it is important to take into account their baseline skills when they entered the course. Considering that they reported having at least moderate incoming skills in each area (mean ratings of 3.0 to 3.4), there was limited room for improvement. As one student

commented, "Sometimes…little improvement happens because you're already pretty good to begin with." He added that he would select "significant improvement" only if he started out as "really bad" and/or improved to being "really good" at something. Another student commented that although his research design skills for conducting his project improved greatly, he specified only "moderate improvement" because he felt he would still need considerable guidance to develop the methodological approach for a completely different type of project.

In addition to closed-ended skills questions, we asked students to specify whether the practicum improved any other skills not mentioned. Although over one quarter of the students mentioned a specific skill, we determined that most of those skills were simply more specific component skills falling under the broad title of "Applying policy analysis skills to address a real problem." For example, a few students highlighted the real-world aspect of the project, noting that the practicum helped them to better understand real-world policy problems and constraints, and to realize that there is not necessarily just one correct way to address a policy problem. Students also reported improvements in qualitative methods skills and their abilities to "integrate quantitative data into a qualitative argument." Another student wrote that the practicum built "the skill of breaking apart a larger problem and looking for the key components or drivers of that problem."

General Professional Skills

To help us assess improvements in general professional skills, the survey contained questions regarding team management (i.e., working with others in a team setting), communicating with clients and other professionals, project management (e.g., task and time management), and oral presentation skills. Students rated their pre-practicum skills in these areas higher than they rated their pre-practicum specific policy analysis skills. The mean ratings fell within the small range of 3.6 to 3.9. For each of the professional skills, over half of the students assigned their pre-practicum

skills a rating of 4.0 or higher. We expect that students had developed these skills through projects in other courses as well as through jobs, internships, and extracurricular activities.

As shown earlier in Table 1, students reported that the practicum improved their general professional skills by about the same amount as it improved their specific policy analysis skills, although there was less variation across skill area. The mean ratings were 3.8 (team management), 3.7 (communication with professionals), 3.6 (project management), and 3.1 (oral presentation skills). With the exception of oral presentation skills, the percentage of students who specified a rating of 4 or 5 ranged from 55% to 69%.

Overall, we find that students believe they entered the practicum with at least a moderate set of specific policy analysis skills and general professional skills, and that the practicum helped them improve upon both types of skills to varying degrees. A number of students added optional comments about the impact of the practicum on their skills, as represented by the following responses:

> I felt that this project did develop and improve all of these different skills that I had learned but never really put into practice.

> I think the practicum…perfectly fulfills its "capstone" function, requiring students to synthesize and apply all that they've learned through their Public Policy and Economics courses.

> One of the most important and fulfilling aspects of the practicum program was that it enabled public policy students to actually apply what we had been studying throughout the major. We were able to explore [our major's] practical application and bring our public policy studies full circle.

IMPACT OF PRACTICUM AFTER GRADUATION

Stanford's Public Policy undergraduates tend to work as analysts in various fields immediately after graduation. Sixty percent of the jobs held

by the survey respondents were in government agencies, research institutes, consulting, finance, corporate/industry, and nonprofit organizations. Remaining positions included being graduate students (e.g., law, business, PhD) and having jobs in the teaching and legal fields. Stanford's Public Policy major, including the practicum, is designed to train students for the analyst positions they tend to take. In fact, most Public Policy undergraduates work in positions after graduation that include components of their practicum experience, such as analysis of complex problems and/or data sets, project and team-based work, and client service.

Given the large overlap between many students' work and practicum experiences, we expected and found the practicum experience to be useful to many students in their postgraduate careers. In response to a question of how useful the practicum had been to them overall since the course ended, students provided a mean rating of 3.9, and almost 65% of students provided a rating of 4 or 5. In the next sections, we delve deeper into the ways in which students have found the practicum experience useful after the course ended, including its effects on their day-to-day work and career paths and interests.

Impact on Day-to-Day Work

To determine the relative usefulness of the different skills required by the practicum, we asked students to evaluate how useful each skill has been to them after graduation. As shown in Table 2, the mean ratings for specific policy analysis skills fell between 3.1 (quantitative methods) and 3.8 (collecting and preparing data for analysis). The students reported that the general professional skills had been even more useful after graduation: Mean ratings ranged from 4.4 (project management skills) to 4.7 (communication with clients and other professionals). The higher ratings for the latter skills are unsurprising, given the broader applicability of those skills across job types. These results make clear that after graduation, students do use the skills they improved upon during their practicum experience.

As expected, students doing work closest to practicum work found the skills stressed in the practicum to be more valuable in their positions than other students did. For this analysis, we considered more practicum-relevant positions as being those in government agencies, research institutes, consulting, finance, corporate/industry, and nonprofit organizations; less relevant positions included being graduate students and working in the legal and teaching fields. Compared to others, students who held more practicum-relevant jobs provided a mean usefulness ranking that was 0.5 to 1.3 points higher for specific policy analysis skills, and 0.5 to 1.0 points higher for general professional skills. For all skills except quantitative methods skills, the differences were statistically significant.

To get a better sense of the practicum impact on their postgraduate life, we asked students to describe the influence their practicum experience has had on their work in a professional or academic context since graduation. Only one student, an artist, indicated that the practicum had not influenced his postgraduation life in any way, though he added that his view could change if he switches careers.

Over 70% of the students mentioned ways that the practicum has influenced their day-to-day work in their current and/or previous positions. Some students commented that it was the most useful of their classes in preparing them for their jobs. Although most students focused on a few beneficial skills, others noted that all the skills stressed in the practicum have been useful in their work, as illustrated by the following quotes:

> I work in local government in a project management capacity and utilize the skills from the practicum on a daily basis. ...[T]he practicum allowed us to exercise exactly the same approach that I now use in making policy recommendations to our board of supervisors.

> As an analyst at a consulting firm, I've found that a lot of what we did in the practicum has helped [me] progress at my new job. ...[N]o class could have been more relevant.

> All of the skills that were…honed throughout the practicum, ranging from …successful team [management] to the actual execution of the project (data collection and analysis, client interaction as well as presentation), are applicable in some degree to my [daily work in the financial sector]. The improvement in each as a result of the practicum experience has served me well over the years.

> Everything from the research skills, to the writing, to the teamwork has helped me in every aspect at my new job as a paralegal clerk.

> As a policy analyst, public finance investment banker, and now venture capitalist, all these skills have been used on an almost daily basis.

Among the many comments regarding specific policy analysis skills, an analyst at a nonprofit noted that the most useful skill she gained was the ability to narrow the scope of a big project to focus on its fundamental aspects. In the business world, a manager wrote, "The skills I acquired in identifying problems, researching market data, and synthesizing that data to create recommendations have been extremely helpful." According to an analyst at a utilities company, the practicum improved her "demand for quantitative rigor in my own work and colleagues' work." An educator remarked that her projects have benefited from what she learned about "designing methodological approaches and determining [the] validity of data collection." Another educator mentioned the following ways the practicum has influenced her work:

> The skills I learned during the practicum project (quick, but thorough analysis and team building skills) have helped me provide…valued input to the development of our new school site. I am currently using many of the skills I acquired through the practicum to help develop a new teacher professional development model that the charter organization will use as it expands next year.

Regarding more general professional skills, multiple students mentioned that their work benefits from their improved team and project management skills. Other students focused on writing skills. For example, a local government employee who writes several policy reports a year stated, "My practicum was highly useful in exposing me to the basics of writing for a small, local policy audience." Other students commented on their increased ability to communicate with clients and other professionals. One student wrote:

> Learning how to interact with our client and manage that relationship proved to be invaluable experience in my job in management consulting after college. Additionally, the interviews we did with experts and local stakeholders really prepared me for real-life interviews I've since conducted.

Along with benefiting students in the workplace, some students remarked that the practicum has helped them in graduate school as well, including with giving oral presentations, doing team projects, generating research ideas, and conducting research. Others mentioned the influence of the practicum on their career direction and job search, which we discuss further in the next section.

Respondents were also asked whether there were practicum skills that they were not currently using but expect to use in the future. Over half of the students answered yes, mentioning a wide variety of skills. The two most common responses were policy analysis skills in general and quantitative methods/data analysis skills. Other skills included research design, survey design, interviewing, policy writing, oral presentation, project and team management, and the ability to digest policy reports written by others. Most students expected to use these other skills in future jobs, including jobs in different professions than their current ones.

In addition to gaining skills, practicum students become deeply familiar with knowledge specific

TABLE 2.
Usefulness of Practicum Skills After Graduation

		(1) Not Useful	(2)	(3) Moderately Useful	(4)	(5) Very Useful	Mean Rating
		Percentage of Students (row percentages)					
Policy Analysis Skills	Applying policy analysis skills to address a real problem	8	21	18	18	36	3.5
	Writing for a policy audience	13	31	13	8	36	3.2
	Research design (e.g., determining project scope and method-ological approach)	3	23	23	23	28	3.5
	Collecting and preparing data for analysis	3	13	23	26	36	3.8
	Quantitative methods (e.g., cost-benefit analysis, regression)	8	28	28	15	21	3.1
General Professional Skills	Team management (i.e., working with others in a team setting)	3	3	8	21	67	4.5
	Communication with clients and other professionals	3	0	0	23	74	4.7
	Project management (e.g., task & time management)	3	8	5	21	64	4.4
	Oral presentation skills	3	5	3	31	59	4.4

Note. $N = 39$.

to their project, such as high-speed rail construction or California's child care subsidy programs. Considering the narrowness of the topics and the limited choice students have among topics, we were surprised that over 65% of the students reported that their domain expertise had been at least moderately useful after the course ended. Only 15% of students indicated that it was "not useful," and 21% indicated that it was "very useful"; the mean rating was 2.9.

Among the students who found their domain expertise most useful, one student noted that she worked on environmental sustainability issues after graduation "in large part because this was the focus of our practicum project." Another student noted that in his first job at a grant-making organization, he applied evaluative criteria developed by his practicum team regarding the effectiveness of nonprofit organizations. Some students noted that the knowledge has not been useful on a professional

level, but it has been on a personal level and/or might be useful later in their professional life.

Impact on Career Paths and Interests

In our survey, we also explored the extent to which practicum involvement influences student career paths and interests. While recognizing that many students already had obtained jobs or submitted graduate school applications when entering the practicum, we still asked about the ways in which students had used their practicum experience in job searches or graduate school applications. Nearly three quarters of the students noted that they had used the practicum in this capacity. As shown in Table 3, slightly over half of them listed it on their resumes, and 62% discussed it in an interview. Over 15% of the students "sought career advice from a practicum contact besides [the course] instructor." A few students indicated additional ways they capitalized on the practicum in their job search, such as listing a practicum contact as a reference. One student used the report format from the practicum when preparing a sample report for a job application, adding, "I believe it helped me land the job offer."

TABLE 3.
Use of Practicum Experience in Job Search and Graduate School Applications

Use of Practicum Experience	Percentage of Students
Discussed in interview	62
Listed on resume	51
Networked with practicum classmates	18
Sought career advice from a practicum contact besides instructor	15
Other	10

Note. *N* = 39.

Some students mentioned how their practicum experience benefited them in job interviews, ranging from giving them a past teamwork experience to discuss to being "a large selling point in landing my first job." As one student stated, "I think it is incredibly helpful for the students to have a finished/polished piece of policy work under their belts to show to potential employers. I certainly referenced this project in interviews." Other comments included the following quotes:

> [I could] better articulate what skills I could bring to an organization during my job interviews, because [the course had] pushed me to apply all of the concepts I had studied over the past 4 years.

> During my interviews, employers liked that I worked on a project that [our client] ultimately implemented.

> The experience was very interesting to employers and made it easier for me to find a job in this field of work.

We examined ways in which clients had served as professional resources for the students. During the projects, many clients told the students that they would be happy to discuss career-related issues with them. In addition, at the students' final presentations, some clients asked the students to contact them if they were interested in a job with their organizations. To learn how students actually used their clients as professional resources, we asked about any contact they had with them after the practicum ended. About one fifth of the students reported that they had been in touch with their clients after the practicum. About half of such contacts pertained to next steps with their projects, such as publishing the students' work and getting updates on their project's impact. The remaining contacts pertained directly to students' postgraduate careers. Some students received career advice, and a few got jobs through their clients.

We also explored whether fellow classmates had provided professional support for each other. Almost one fifth of the students reported that their relationships with their practicum

classmates had influenced their professional development. Most of these students had kept in touch with one or more classmates regarding jobs, graduate school, and policy issues. One student took a job that she learned about from a practicum teammate.

Over half of the students answered affirmatively to the question, "Has your practicum experience influenced your career interests/path?" Among these students, almost half mentioned that it led them to pursue certain types of jobs or graduate programs, as reflected in the following comments:

> The analytical nature of the practicum was highly satisfying and encouraged me to pursue analytically oriented jobs after college, which led me to the positions I've had to date.

> The experience was one of the factors that motivated me to pursue a job in management consulting, where I will get to, in a similar way to the practicum project, analyze problems and produce recommendations for clients.

> It led me to search for a case/project based job and gave me confidence in my ability to work in such a setting.

> I had a high interest in urban/local issues prior to the practicum, but [the practicum] essentially led to my current career path working directly in local government (as opposed to in urban policy more generally or in the non-profit sector).

> I ended up pursuing a[n] MA in education policy analysis rather than teaching, which ended up being a better fit for me in the long run.

Some students noted that the experience would likely affect graduate school and job decisions in the future. For example, one student said, "It has made me think much more seriously about pursuing a master's in

public policy." Another noted, "As I continue to assess what my next career steps are, I use this project as a reference point for the type of work I do want to do."

Other recurring responses include that the practicum increased the students' interest in a policy issue area (e.g., education, philanthropy) or reinforced their previous methodological or policy interests. One student stated that "it confirmed my interest in helping create policy based on sound research and comprehensive analysis," while another wrote that "it further cemented that I want to go into policy and education reform after I finish teaching."

We also asked specifically about whether the practicum influenced students' interest in both public service in general and jobs that include policy analysis work. As indicated in Table 4, over 40% of students reported a change in their interest in policy analysis jobs after the practicum, and all but three of these students indicated being more interested. The mean rating for interest in policy analysis jobs increased from 3.49 before the practicum to 3.90, a statistically significant difference. Although the students were already quite interested in public service in general upon entering the practicum, 15% of them expressed slightly greater interest after the practicum and none of them expressed less interest in it. The mean rating for public service interest increased from 4.10 to 4.28, which was statistically significant.

TABLE 4.

Practicum Impact on Students' Interest in Certain Career Fields

Career Field	Less Interest	No Change	More Interest
	Percentage of Students (row percentages)		
Policy analysis	8	59	34
Public service	0	85	16

Note. *N* = 39.

STUDENTS' RECOMMENDATIONS FOR IMPROVING THE PRACTICUM

The previous results suggest that the undergraduate practicum program is achieving the goal of providing students with training to help them conduct policy analyses in the real world. At the same time, the students offered a number of suggestions for improving the course.

We gleaned some information regarding areas for improvement by asking students how challenging various aspects of their practicum experiences were. Based on the mean ratings, the most challenging aspects were time constraints (3.2) and a few key components of project execution, including data availability (3.1), determining methodological approach (3.2), and project scope (3.3). As one student noted, "Our project required a TON of hours and effort because we kept running into roadblocks with regard to data and interviewee availability." Another student summarized his team's primary challenge:

> The most challenging aspect of our project occurred at the outset, in determining the scope and the methodological approach we would use to compare different nonprofit [evaluators]. We had to do a considerable amount of research to figure out the major players in the space and then in turn, to determine a set of criteria with which to measure their efficacy.

A couple of students suggested that certain challenges should be viewed positively. For example, "The best part of the practicum is how it really sets the bar high—so the fact that the project scope is a major challenge is NOT a bad thing."

Most students did not find the remaining factors on the list to present even a moderate challenge. These factors and their mean ratings are team characteristics, including team dynamics (2.4), quantitative skills (2.3), and writing skills (2.0); client factors including guidance (2.1), accessibility (2.1), and biases (2.2); and instructor guidance (1.5). A few

students elaborated on problems with team characteristics resulting from quantitative skill limitations as well as different personalities and skill levels. Other comments were highly project specific; for example, one student identified her team's largest obstacle as "accurately quantifying various environmental impacts and addressing the cost-effectiveness of each item."

Many students suggested ways to minimize the challenges they faced in the practicum. When asked about additional training, one third of the students answered that they felt that they should have received additional training in at least one of the skills required by the practicum before beginning their projects. Over half of these students wanted more training in quantitative methods, including additional training in econometrics, cost-benefit analysis, and "real-world applications of quantitative methods." Other students indicated that it would have been helpful to have previous experience with practicum-like projects in a classroom setting. For example, "It would be great to have theoretical scenarios or 'case studies' in previous courses to practice the [practicum] skills." Another student wrote:

> The practicum was the first time I felt like my classmates and I had the opportunity to "sink our teeth" into a concrete, manageable, policy issue and work towards a solution. For this reason, I think the practicum is incredibly valuable (probably the single most valuable class in the [Public Policy] program), but it may be beneficial to have opportunities to do work like this, on a smaller scale, earlier in the program.

Two students indicated that they would have benefited from more instruction regarding team building, but these students took the practicum before team-building training was added to the course. A few students identified other areas for additional training, including methodological approaches and client management skills.

Over half of the students provided "suggestions that could improve the practicum experience for future students and clients." Although a couple of students recommended incorporating additional training in quantitative methods, most comments focused on noninstructional aspects of the course. The most common suggestion pertained to project selection: Five students recommended more choice among topics, more meaningful projects, and more rigorous, data-heavy projects. Four students provided timing recommendations including expanding the course to two quarters, which is contrary to most of the student feedback that instructors have received on this topic. A few students suggested additional client engagement, and others made suggestions regarding teamwork, including appointing a team leader. A student who was a member of one of the two 6-person teams recommended smaller teams.

Stanford's Public Policy Program is working to address many of these suggestions. For example, instructors have increased the amount of applied policy analysis exercises and training in applied quantitative methods students receive before the course. The practicum instructors are now seeking more data-intensive projects, limiting teams to five students, and offering the practicum course every quarter.

CONCLUSION

Our results indicate that Stanford's Public Policy Undergraduate Practicum Program is highly effective at training policy students to work in the real world. We find that the program helps students improve their policy analysis skills and general professional skills—skills that have proven useful in most jobs students have held after graduation. In addition, the practicum experience appears to benefit numerous students in their career planning and job searches. Many students reported that the practicum was one of the most valuable courses they took at Stanford. The students' feedback on the course overall was solidly positive, including comments like "best academic experience," "invaluable," "amazing," and "awesome, awesome, awesome."

We attribute the program's success largely to its basic structure: student teams working for real-world clients on challenging and interesting policy questions under close faculty supervision. This structure forces students to apply the policy analysis skills they have been taught previously in the major. Students also gain general professional experiences by having to work on a team, manage their projects, and communicate with professionals. In addition, we believe that students' written and oral communication skills significantly improve due to the program's rigorous process for preparing client deliverables. For example, for the final report, the instructors insist on a high standard of writing quality and provide detailed feedback on an outline and two drafts.

Other practicum programs have demonstrated benefits for students in the short term that are similar to our results with the Stanford program. We expect that these practicum programs would also find results akin to ours regarding the impact of their programs on students after graduation. Considering how much we learned about the Stanford program from our survey, we encourage other practicum programs to survey their alumni to better understand the long-term impact of their courses and identify opportunities for improvement. In addition to being useful internal information, the surveys would allow other educators to learn from their results.

We hope our findings encourage undergraduate and graduate programs that do not have practicum courses to consider implementing them. Because government agencies and nonprofit organizations exist in almost every community, these types of courses can be implemented at nearly any academic institution. Practicum courses can take many different forms, so programs can tailor their courses to best meet their goals and constraints. For example, practicum courses can vary by how long the course is, whether it is a required course, and whether projects are done by teams or individuals. Although the Stanford program has had different client organizations for each student team, it is possible to have one client for multiple teams, thus reducing the amount of client coordination.

To get ideas for designing a practicum course, we encourage other programs to consider the structure of the Stanford course described herein and of graduate and undergraduate practicum courses/programs described elsewhere. These include practicum offerings at NYU's Wagner School (Smith 2005), Columbia University's School of International and Public Affairs (Cohen et al., 1995), Syracuse University's Maxwell School (Allard & Straussman, 2003), Eastern Michigan University (Bernstein et al., 2003), and California State University at Chico (Turner, 2014). Garris et al. (2008) also discuss different types of practicum courses. Examining the design of other practicum courses was invaluable in developing the Stanford course to best meet its needs.

Although we have focused on practicum courses in this paper, they are just one type of capstone experience offered by programs in public policy, public administration, and other social sciences. For example, Garris et al. (2008) found that many programs require internships, often in addition to a practicum course. Some programs offer practical integrative capstone courses without clients, while others require a paper or thesis on a substantive policy issue. Each type of capstone experience has its advantages and disadvantages. For example, capstone courses that do not use clients will avoid having to coordinate with external organizations that can sometimes prove unreliable, but their students miss out on learning from interactions with these professionals. Educators would benefit from more research on the pros and cons of different models for capstone courses, including their impact on students in the immediate and long term. These data could help institutions determine what model best meets their goals subject to their constraints.

ACKNOWLEDGMENTS

NOTES

1   Stanford's Public Policy Program has also offered a practicum course to its graduate students since 2008. This paper focuses exclusively on the undergraduate practicum course, due to the greater number of Public Policy students who have participated in the undergraduate practicum and to structural differences between the undergraduate and graduate practicum courses.

REFERENCES

Allard, S. W., & Straussman, J. D. (2003). Managing intensive student consulting capstone projects: The Maxwell School experience. *Journal of Policy Analysis and Management, 22*, 689–701.

Bardach, E. (2012). *A practical guide for policy analysis: The eightfold path to more effective problem solving.* Washington, DC: CQ Press.

Bernstein, J. L., Ohren, J., & Shue, L. (2003). A collaborative-teaching approach to linking classes and community. *Journal of Public Affairs Education, 9*, 117–127.

Brown, J. D. (2012). Understanding the better than average effect: Motives (still) matter. *Personality and Social Psychology Bulletin, 38*, 209–219.

Campbell, D. A., & Lambright, K. T. (2011). How valuable are capstone projects for community organizations? Lessons from a program assessment. *Journal of Public Affairs Education, 17*, 61–87.

Cohen, S., Eimicke, W., & Ukeles, J. (1995). Teaching the craft of policy and management analysis: The workshop sequence at Columbia University's Graduate Program in Public Policy and Administration. *Journal of Policy Analysis and Management, 14*, 606–626.

Flynn, T. A., Sandfort, J. R., & Selden, S. C. (2001). A three-dimensional approach to learning in public management. *Journal of Policy Analysis and Management, 20*, 551–564.

Garris, R., Madden, J., & Rodgers III, W. M. (2008). Practitioners' roles, internships, and practicum courses in public policy and management education. *Journal of Policy Analysis and Management, 27*, 992–1003.

Guenther, C. L., & Alicke, M. D. (2010). Deconstructing the better-than-average effect. *Journal of Personality and Social Psychology, 99*, 755–770.

Jacoby, B., & Associates. (1996). *Service learning in higher education: Concepts and practices*. San Francisco: Jossey-Bass.

Markus, G. B., Howard, J. P. F., & King, D. C. (1993). Integrating community service and classroom instruction enhances learning: Results from an experiment. *Educational Evaluation and Policy Analysis, 15*, 410–419.

Paulhus, D. L. (1984). Two-component models of socially desirable responding. *Journal of Personality and Social Psychology, 46*, 598–609.

———. (1991). Measurement and control of response bias. In J. P. Robinson, P. R. Shaver, & L. S. Wrightsman (Eds.), *Measures of personality and social psychological attitudes* (pp. 17–59). San Diego, CA: Academic Press.

Schachter, D. R., & Schwartz, D. (2009). The value of capstone projects to participating client agencies. *Journal of Public Affairs Education, 15*, 445–461.

Smith, D. C. (2005). Practice, practice, practice: The clinical education of policy analysts at the NYU/Wagner School. In I. Geva-May (Ed.), *Thinking like a policy analyst: Policy analysis as a clinical profession*. Gordonsville, VA: Palgrave Macmillan.

Turner, C. C. (2014). Civic engagement in the capstone: The state of the community event. *PS: Political Science & Politics* (forthcoming, April 2014).

Villaneuva, A. M., Hovinga, M. E., & Cass, J. L. (2011). Master of public health community-based practicum: Students' and preceptors' experiences. *Journal of Public Health Management and Practice, 17*, 337–343.

Wells, M. (2006). Teaching notes: Making statistics "real" for social work students. *Journal of Social Work Education, 42*, 397–404.

Whitaker, G. P., & Berner, M. (2004). Learning through action: How MPA public service team projects help students learn research and management skills. *Journal of Public Affairs Education, 10*, 279–294.

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APPENDIX A

Student Survey (Instructions)

Dear [team members],

I hope you're doing well. I'm writing because the Public Policy Program is conducting a five-year review of our practicum program, which you participated in through the PUBLPOL 200 course in [year]. An essential component of the review is getting feedback from former students and clients about their experience with the practicum course, including its post-practicum impact. This information will help us evaluate the program and make improvements to it for future students and clients. Therefore we would greatly appreciate it if you would fill out our short survey (link below) and submit it by [date]. We expect it to take 10–15 minutes. For your reference, I'm attaching the report you prepared for your client. Please let me know if you have any questions or would like to hear about the findings. Thank you very much.

Student Survey (Form)

BACKGROUND

(1)   Your name: _____

(2)   How much did your practicum project overlap with…

	(1) Not at all	(2)	(3) Somewhat overlapped	(4)	(5) Significantly overlapped
your intellectual interests					
your post-graduation plans/career ambitions					
your prior skills training in Public Policy					

Comments: _____

(3)   Did you have any policy analysis experience outside an academic setting prior to the practicum?

☐ No   ☐ Yes (please specify): _____

PRACTICUM EXPERIENCE

(4)   Rate your pre-practicum skills with respect to:

	(1) Very poor skills	(2)	(3) Moderate Skills	(4)	(5) Excellent skills
Research design (e.g., determining project scope and methodological approach)					
Collecting and preparing data for analysis					
Quantitative methods (e.g., cost-benefit analysis, regression)					
Writing for a policy audience					
Oral presentation skills					
Communication with clients and other professionals					
Team management (i.e., working with others in a team setting)					
Project management (e.g., task and time management)					
Applying policy analysis skills to address a real problem					

Comments: _____

PRACTICUM EXPERIENCE

(5) Rate any improvement in these skills due to your practicum experience:

	(1) No improvement	(2)	(3) Moderate improvement	(4)	(5) Significant improvement
Research design (e.g., determining project scope and methodological approach)					
Collecting and preparing data for analysis					
Quantitative methods (e.g., cost-benefit analysis, regression)					
Writing for a policy audience					
Oral presentation skills					
Communication with clients and other professionals					
Team management (i.e., working with others in a team setting)					
Project management (e.g., task and time management)					
Applying policy analysis skills to address a real problem					

Comments: _____

(6) Did your participation in the practicum improve any skills that were not mentioned in the previous question?

☐ No   ☐ Yes (please specify): _____

(7) Do you feel that you should have received additional training in any of the skills required by the practicum before undertaking the project?_____

☐ No   ☐ Yes (please specify): _____

(8) How helpful were the following resources to you during the practicum?

	(1) Not helpful	(2)	(3) Moderately helpful	(4)	(5) Extremely helpful	N/A (did not use)
Practicum instructor/s						
Other Stanford faculty						
Non-Stanford experts/practitioners outside your client's organization						
Social Sciences Resource Center						
Stanford Writing Center						
Oral Communications Program						

Comments: _____

(9) How much of a challenge did these factors pose for the execution of your practicum project?

	(1) No challenge	(2)	(3) Moderate challenge	(4)	(5) Major challenge
Project scope					
Determining methodo- logical approach					
Data availability					
Your team's quantitative skills					
Your team's writing skills					
Client accessibility					
Client biases					
Client guidance					
Instructor guidance					
Team dynamics					
Time constraints					

Please elaborate: _____

POST-PRACTICUM IMPACT

(10) How useful have these skills been to you since you graduated from Stanford?

	(1) Not useful	(2)	(3) Moderately useful	(4)	(5) Very useful
Research design (e.g., deter- mining project scope and methodological approach)					
Collecting and preparing data for analysis					
Quantitative methods (e.g., cost-benefit analysis, regression)					
Writing for a policy audience					
Oral presentation skills					
Communication with clients and other professionals					
Team management (i.e., working with others in a team setting)					
Project management (e.g., task and time management)					
Applying policy analysis skills to address a real problem					

Comments: _____

(11) Please explain how your practicum experience has influenced your work in a professional or academic context since you graduated. We would greatly appreciate as much specificity as possible.

_____

_____

(12) Are there skills you developed in the practicum that you are not using currently, but you expect to use in the future?

☐ No   ☐ Yes (please specify): _____

(13) Has the subject area knowledge/domain expertise you acquired during the practicum been useful to you since the course ended?

☐ (1) Not useful   ☐ (2)   ☐ (3) Moderately useful   ☐ (4)   ☐ (5) Very useful

Comments: _____

(14) Have you been in touch with your client since the practicum ended?

☐ No   ☐ Yes (please specify why): _____

(15) How, if at all, have you used your practicum experience in your job search/graduate school applications? Check all that apply.

☐ Listed on resume   ☐ Discussed in interview

☐ Sought career advice from a practicum contact besides instructor

☐ Have not used it   ☐ Other (please specify): _____

(16) Have the relationships you formed with your practicum classmates influenced your professional development (e.g., networked with your classmates during your job search)?

☐ No   ☐ Yes (please elaborate): _____

(17) Has your practicum experience influenced your career interests/path?

☐ No   ☐ Yes (please elaborate): _____

(18) How interested were you in jobs that include policy analysis work…

	(1) Not at all interested	(2)	(3) Somewhat interested	(4)	(5) Very interested
before the practicum					
after the practicum					

Comments: _____

(19) How interested were you in public service…

	(1) Not at all interested	(2)	(3) Somewhat interested	(4)	(5) Very interested
before the practicum					
after the practicum					

Comments: _____

(20) How useful has the practicum been to you overall since the course ended?

☐ (1) Not useful   ☐ (2)   ☐ (3) Moderately useful   ☐ (4)   ☐ (5) Very useful

Comments: _____

CLOSING

(21) Do you have any suggestions that could improve the practicum experience for future students and clients?

_____

_____

(22) Do you have any other comments regarding the practicum program?

_____

_____

(23) Do you know of any Bay Area organizations that might be interested in serving as clients for future practicum projects?

☐ No   ☐ Yes (please specify): _____

To help us better understand how the impact of the practicum may vary by profession, please provide us with this information about your professional life since graduation.

(24) Your current employer, academic program, or other: _____

(25) Current title: _____

(26) Previous positions since graduation (if any): _____