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Building Leadership among Laboratory-Based and Clinical and Translational Researchers: The University of California, San Francisco Experience

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Abstract

In 2005 the University of California, San Francisco (UCSF) implemented the Scientific Leadership and Management (SLM) course, a 2-day leadership training program to assist laboratory-based postdoctoral scholars in their transition to independent researchers managing their own research programs. In 2011, the course was expanded to clinical and translational junior faculty and fellows. The course enrollment was increased from approximate 100 to 123 participants at the same time. Based on course evaluations, the number and percent of women participants appears to have increased over time from 40% (n = 33) in 2007 to 53% (n = 58) in 2011. Course evaluations also indicated that participants found the course to be relevant and valuable in their transition to academic leadership. This paper describes the background, structure, and content of the SLM and reports on participant evaluations of the course offerings from 2007 through 2011.

Keywords

ethics; outcomes research; translational research

Introduction

In laboratory-based and clinical and translational science, leadership is an important factor in academic productivity and professional advancement; however, laboratory-based and clinical and translational researchers are rarely trained in the skills required to independently lead their own research groups. To address this gap in training, the University of California, San Francisco (UCSF) established a course titled “Scientific Leadership and Management” (SLM), a 2-day leadership training program to equip postdoctoral scholars and laboratory-based junior faculty with the specific tools and strategies needed to better understand and

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deploy their own unique leadership skills and styles. The course is supported by UCSF's School of Medicine Dean's Office, the Clinical and Translations Science Institute (CTSI), and the J. David Gladstone Institutes, the Office of Career and Professional Development (OCPD), a department that provides services, resources, and programs designed to help UCSF's trainees advance in their careers.

The SLM fits into a wider array of programs that UCSF offers toward the success of current and future faculty, including the mentor development program (MDP),[1–3] a set of pragmatic, skills-based faculty programs,[4] and customized leadership development programs for UCSF faculty and departments.[5,6] Unlike some of these other programs, the SLM has not been described or evaluated to date.[1,2,7–12] this paper describes the structure and content of the SLM and reports on participant evaluation of the course offerings from 2007 through 2011.

SLM course background

The Burroughs Wellcome Fund (BWF) and the Howard Hughes Medical Institute (HHMI) pioneered a laboratory management course for HHMI- and BWF-funded postdoctoral scholars, fellows, and junior faculty. the BWF/HHMI course was offered in 2002 and 2005. During the 2005 course, HHMI brought in observers from several universities, including UCSF, with the goal of disseminating the course content. Subsequently, UCSF was the first university to implement a laboratory leadership training course modeled after the HHMI program.

The SLM course is based on BWF/HHMI's "Making the Right Moves,[13]" and largely follows the course outline, materials, and model by Maryrose Franko of HHMI. the UCSF version was adapted with a reduced timeframe and cost by Bill Lindstaedt, and OCPD, in collaboration with UCSF's Center for the Health Professions (the Center), one of the oldest and largest health professions workforce research centers in the United States with an expertise in leadership development spanning the health care system. This final program was the result of OCPD's assessment of needs and the Center's experience in planning and executing leadership training.

UCSF's initial objective in providing the SLM was to train *early-career researchers* in laboratory leadership and management so that they can more efficiently and effectively transition from the role of postdoctoral researcher to that of an independent researcher. When the course was first conceptualized for UCSF, it was unclear whether researchers with demanding academic schedules would perceive the need for leadership training. However, since SLM was initially offered in 2005, the course has been in high demand and is consistently oversubscribed.

In 2011, the leadership of UCSF's Clinical and Translational Science Institute (CTSI) approached OCPD with a proposal to expand SLM availability to junior clinical and translational research faculty and fellows, who face many of the same leadership challenges as laboratory-based scientists. The 2008–2010 SLM cohorts included some clinical and translational researchers, and the 2011 course formally integrated junior clinical and translational researcher faculty and fellows by expanding the participant criteria and the course enrollment.

SLM curriculum

The curriculum consists of 11 sessions (see Table 1) held over 2 days. Participants are asked to complete an assignment between days one and two. Experts in health care leadership share their experience during each session in a panel or small group settings with the participants. In 2011, when SLM was expanded to include clinical and translational researchers, the curriculum was adapted to include case studies and panelists with experience outside of the laboratory setting and to place a greater emphasis on issues related to clinical and translational research. The 16-hour training is roughly divided up into four expert-guided segments:

1. Your own unique leadership and communication style: Participants complete Myers Briggs Type Indicator (MBTI) personality assessments prior to beginning the course. Participants are taught to improve communication, leadership, and conflict management based on their own personality types.
2. Apply your style as a leader: Best practices in leadership are examined, including developing others, motivating a team, and conducting difficult conversations successfully.
3. Work with your group to achieve your goals: Team and goal management are discussed, with specific guidance on hiring the best fit for your team and time/task management to keep a group on track.
4. Communicating your vision: The vision behind your work is explored, and participants learn concrete skills to communicate that vision to your team and others in and outside of the academic arena.

An example of the course curriculum is shown in Table 1, and a link to the 2013 course schedule is available online at https://career.ucsf.edu/grad-students-postdocs/leading/leadership-course.

Application and selection process

The application and selection process vary slightly for laboratory-based postdoctoral scholars as compared to clinical and translational research faculty and fellows. All applicants must have UCSF as their primary professional affiliation and provide a clear description of how the SLM would help the applicant in his or her own academic research program. Preference is given to applicants already in the academic job market, to those closest to leading their own research group, and to those who have recently begun to lead.

Postdoctoral applicants must have been in their position for greater than 2 years, unless their particular field has a brief postdoctoral period. Clinical translational research fellow and junior faculty applicants must spend at least 30% of their time conducting research. For both laboratory-based and clinical-translational research faculty, priority is given to those who are at or below the rank of “assistant,” with less than 5 years as leaders of their own research group. Applications are reviewed by the course committee, and selection is based on the applicant’s emerging leadership opportunities. Applicants who are not enrolled pursuant to their first application are often advised to reapply the following year; thus, the demographic characteristics of applicants and enrollees do not vary greatly from year to year.

The SLM course has been offered six times in the last 7 years, during which a total of 628 applicants have enrolled. Approximately 80% of the applicant pool was enrolled in the 2011 course offering, which is consistent with course offerings in previous years. Enrollment was expanded from 100 applicants to 120 in 2011 to accommodate the inclusion of clinical and translational research faculty and fellows. Table 2 shows the distribution of SLM enrollees by program and by year.

Methods

Course evaluation

The SLM course is evaluated using a survey administered by the course committee to participants at the end of each course day. The survey collects basic demographic information, along with participants' perceptions of the relevance and value of each speaker and session. Perception questions are asked on a five-point Likert scale (Poor; Fair; Good; Very Good; Excellent). In addition, questions on the likelihood of making changes based on the training and willingness to recommend the course to others are asked with answer choices of Yes, Maybe, and No.

Results

Course participants' demographics

The number and percent of women participants appears to have increased over time from 40% (n = 33) to 53% (n = 58), based on survey responses. Of those who responded to the survey, the majority in each year were white (65% in 2011) and hold a PhD (75% in 2011). While the majority of participants in each year have been laboratory-based researchers (62% in 2011), clinical and translational researchers have participated each year since 2008 (38% in 2011). Basic demographic information for SLM course participants from 2007 to 2011 are shown in Table 3.

Individual session evaluations

Although the survey has changed slightly over the years, a few key trends emerge. The 2011 survey allowed evaluators to compare SLM session rating by clinical and translational researchers to those of laboratory-based researchers. Sessions on the first course day were rated similarly, whereas sessions on the second course day were rated slightly higher by clinical and translational researcher participants than laboratory-based researcher participants. However, a majority of all participants rated the relevance and value of every session as "Excellent" or "Very Good." Session ratings in previous course years are similar to the results seen in 2011. Session ratings for 2011 are shown in Table 4.

Course leaders have been responsive to critiques from participants over the years. The Vision session was reframed to focus promoting research in response to critiques that its initial focus on developing a vision for research was too broad. Also, some participants have said that the case studies were too focused on either clinical and translational science or on laboratory settings, depending on the individual's affiliation. The evaluation encourages

constructive feedback, and the course leaders recognize some session content will be more applicable to some participants more than others.

Overall course evaluations

Participant ratings of the course overall were very positive. One hundred percent of the respondents would recommend the SLM course to a colleague. More than 95% of all respondents indicated they would integrate information from the course into their leadership style and management practices, and 79% reported that they created goals for improving their leadership skills based on the SLM course. Table 5 shows ratings for the 2011 SLM course overall.

In previous years of the course offering, these overall course ratings were similarly high, with 94–100% of respondents selecting “Yes” for Questions 1–3 and 85% of respondents selecting “Yes” for Question 4 in 2009 and 2010. Data from courses prior to 2009 are not available.

The course evaluation includes open-ended questions, one of which seeks suggested improvements to the course. The most common suggestion is to spread the course out over a longer time period to allow more engagement with the material and more time to implement the training. Qualitative comments typical of the overall course evaluation are shown below from the 2011 course evaluation.

- I’ve raved about this course to everyone who will listen. This should be required for all principal investigators.
- Would love to send my boss to this course!
- Leading up concept: I immediately plan to put into effect the 2 × 2 concept of mentoring and leading. Also, the time management and hiring sections were very helpful.

Discussion

This paper describes an ongoing leadership training course at UCSF to help early career laboratory-based and clinical and translational researchers to transition into leadership roles. The course raises awareness and discussion of key skills required to work efficiently and effectively in a leadership position, including best practices in hiring, motivating others, conflict management, and difficult conversations. The course leaders believe that this course opens a conversation for future and new faculty to engage and improve their leadership processes and practices. The course is part of a valuable suite of training and career development courses available to postdoctoral scholars and junior faculty at UCSF and is a valuable opportunity for collaboration across a wide variety of junior laboratory-based and clinical and translational investigators. This facilitates the multidisciplinary team-based collaboration required by modern “bench to bedside” research. In future course offerings, course leaders are interested in creating opportunities for ongoing support for new faculty course participants to continue to grow their leadership skills through small group settings and leadership coaching.

Conclusion

UCSF is committed to equipping their postdoctoral scholars and junior faculty with the skills and abilities they need to become true leaders in the laboratory and clinical research settings. The SLM course is consistently in high demand, and evaluations indicate that the course is relevant and valuable to early career researchers. This course can serve as a model for other institutions internal and external to UCSF to assist emerging leaders in their transition to independent researchers and leaders in an academic community setting.

Limitations

The course evaluation is based on the perceptions of course participants at the training. Outcomes from the training are more difficult to capture for this or for any similar program as participants as not surveyed or followed after course completion to determine the degree to which participants integrate the training into their leadership practices.

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Table 1

Scientific leadership and management course curriculum.

Day 1
Introduction to leadership and Myers–Briggs Type Indicator (MBTI)
Using MBTI to improve leadership performance
Expert led small group breakout activity—MBTI
Influencing others up, down, and out—developing and motivating others, managing conflict, and leading up
Expert led small breakout group activities—Case Study
Day 2
Panel led discussion of vision: Advancing your research program
Panel led discussion of time management
Panel led discussion of staffing your research group: Recruiting the best
Small group breakout activities
Influencing others: difficult conversations and negotiations
Goal setting for leadership development and wrap up

Table 2

Scientific leadership and management course enrollment by program and by year from 2005 to 2011.

Course date	Laboratory-based postdocs	Clinical Research faculty and fellows	Total enrollees
Dec. 15–16, 2005	100	n/a	100
May 9–10, 2007	100	n/a	100
July 1–2, 2008	110	n/a	110
June 29–30, 2009	82	18	100
Sept. 16–17, 2010	76	19	95
Nov. 17 and Dec. 8, 2011	83	40	123

Table 3

Demographic characteristics of scientific leadership and management course participants, 2007–2011.

Demographic characteristics*	2007 (%)	2008 (%)	2009 (%)	2010 (%)	2011 (%)
Female	40 (*n* = 33)	48 (*n* = 39)	54 (*n* = 41)	58 (*n* = 47)	53 (*n* = 58)
White	66 (*n* = 55)	64 (*n* = 55)	60 (*n* = 43)	64 (*n* = 52)	65 (*n* = 68)
Asian	25 (*n* = 21)	20 (*n* = 17)	37 (*n* = 27)	27 (*n* = 22)	24 (*n* = 25)
Hispanic	2 (*n* = 2)	4 (*n* = 3)	1 (*n* = 1)	6 (*n* = 5)	4 (*n* = 4)
Black	1 (*n* = 1)	1 (*n* = 1)	0	0	4 (*n* = 4)
American Indian/Native Alaskan	0	0	0	2 (*n* = 2)	0
Other	4 (*n* = 3)	6 (*n* = 5)	2 (*n* = 2)	0	4 (*n* = 4)
PhD	76 (*n* = 65)	77 (*n* = 69)	76 (*n* = 63)	82 (*n* = 67)	75 (*n* = 92)
MD	22 (*n* = 19)	17 (*n* = 15)	18 (*n* = 15)	17 (*n* = 14)	17 (*n* = 21)
PharmD	0	0	1 (*n* = 1)	0	2 (*n* = 2)
DDS	0	3 (*n* = 3)	0	0	0
Other	1 (*n* = 1)	3 (*n* = 3)	5 (*n* = 4)	1 (*n* = 1)	6 (*n* = 7)
Clinical/Translational researcher	n/a	n/a	n/a	n/a	38 (*n* = 41)
Laboratory research	91 (*n* = 78)	78 (*n* = 66)	69 (*n* = 52)	74 (*n* = 57)	62 (*n* = 79)
Clinical research	9 (*n* = 8)	3 (*n* = 3)	8 (*n* = 6)	3 (*n* = 2)	17 (*n* = 22)
Computational research	0	0	0	0	8 (*n*= 10)
Social/Behavioral research	0	0	4 (*n* = 3)	1 (*n* = 1)	5 (*n* = 7)
Epidemiology/Statistical research	0	0	0	0	3 (*n*=4)
Health policy	0	0	0	0	2 (*n* = 2)
Translational	n/a	17 (*n* = 15)	14 (*n* = 11)	18 (*n* = 14)	n/a
Other	0	2 (*n* = 2)	5 (*n* = 4)	3 (*n* = 4)	2 (*n* = 3)

*Participants were allowed to select more than one advanced degree and more than one type of research. Based on Day 1 attendance/survey response, except for 2009, for which only Day 2 survey data was available.

Table 4

Individual session ratings by participant type for 2011 scientific leadership and management course.

Session	Respondents selecting Excellent or Very Good*		
	Laboratory-based	Clinical/Translational	All
Day 1			
MBTI small group breakout activity			
Relevance	89%	93%	91%
Value	86%	90%	88%
Influencing others up, down, and out; motivating others; managing conflict and leading up			
Relevance	96%	93%	94%
Value	90%	83%	87%
Relevance—Case Study 1 Small group breakout	72%	71%	72%
Relevance—Case Study 2 Small group breakout	75%	71%	73%
Day 2			
Vision: Advancing your research program			
Relevance	85%	80%	83%
Value	78%	86%	81%
Time management			
Relevance	82%	95%	86%
Value	83%	90%	85%
Staffing your research group: recruiting the best			
Relevance	69%	86%	74%
Value	57%	88%	68%
Case studies in small groups			
Relevance	62%	71%	64%
Value	62%	65%	63%
Difficult conversations and negotiations			
Relevance	88%	100%	91%
Value	85%	100%	90%
Goal setting for leadership development			
Relevance	70%	90%	77%
Value	70%	89%	76%

* Percents are calculated based on the number of participants who answered each question rather than on the number of participants enrolled in the course, with a range of 63–110 respondents per question.

Table 5

Overall 2011 scientific leadership and management course ratings by participant type.

Question	Respondents selecting "Yes"		
	Laboratory-based researchers	Clinical translational researchers	All
1. Would you recommend this course to a colleague?	100%	100%	100%
2. Will you integrate the information from this course into your leadership style?	98%	95%	97%
3. Will you integrate the information from this course into your management practices?	98%	91%	96%
4. Did you create tangible goals for improving your skills based on the material learned during the course?	75%	86%	79%