

# The Stanford Anesthesia Faculty Teaching Scholars Program: Summary of Faculty Development, Projects, and Outcomes

ALEX MACARIO, MD, MBA  
 PEDRO P. TANAKA, MD, PhD  
 JOSHUA S. LANDY, MD  
 SARAH M. CLARK, MD  
 RONALD G. PEARL, MD, PhD

## Abstract

**Background** The Stanford Anesthesia Teaching Scholars Program was launched in 2007 to further pedagogic training of faculty and improve residency education.

**Objectives** The goals of this article are to describe the program intervention and improvements made based on participant feedback, summarize the characteristics of the faculty enrolled and projects undertaken, and report on program outcomes tracked to date.

**Intervention** The Teaching Scholars Program housed within the Department of Anesthesia supports faculty in these areas: (1) attending education-related meetings; (2) engaging in a monthly seminar on core topics paired with independent study reading; and (3) undertaking a project to improve resident education. Structured interviews with all graduates ( $n = 19$ ; 47% women) were conducted using a pilot-tested questionnaire.

**Results** A total of 15 of 19 Scholars (79%) were instructors/assistant professors. Sixteen Scholars (84%)

attended an off-site education meeting. The Scholars pursued a variety of projects, including curriculum (53%), teaching (26%), administration (11%), assessment (5%), and advising/mentoring (5%). Projects were fully completed by 13 of 19 participants (68%), and 12 of 19 projects (63%) are currently integrated into the residency. Completed projects were published/presented at conferences by 4 of 13 participants (31%), and education grants were received by 3 of 19 participants (16%).

**Conclusions** This is the first description of a faculty development (education) program in an anesthesiology department. The program has been well accepted by participants and resulted in increased educational products, some of which have become a permanent part of the residency curriculum. This educational innovation can be replicated in other departments of anesthesiology provided that funding is available for faculty time and meeting expenses.

*Editor's Note: The online version of this article contains the checklist used to guide and evaluate the Teaching Scholars project application used in this paper.*

## Introduction

Pressures on the educational mission at academic medical centers have led some medical schools to create structure and culture (eg, academies) to support teaching and

faculty development.<sup>1</sup> Benefits of such programs include institution-wide recognition, networking and collaboration, help with promotion and advancement, career mentoring, knowledge and skill development, and motivation to apply for monetary awards to fund education development (eg, educational courses, curriculum development resources, and educational research).<sup>2-4</sup>

What is less well understood is whether such faculty development programs can succeed if they are housed in a single department, rather than in the broader medical school structure.<sup>5,6</sup> The Stanford Anesthesia Program for teaching faculty was initiated in 2007 at the department level to train and empower faculty to develop their own pedagogy and to improve residency education.<sup>7-9</sup>

The goals of this article are to (1) describe the program intervention and changes made based on participant feedback, (2) summarize the characteristics of the faculty enrolled and projects undertaken, and (3) measure the outcomes.

All authors are in the Department of Anesthesia, Stanford University School of Medicine. **Alex Macario, MD, MBA**, is a Professor of Anesthesia and (by courtesy) of Health Research & Policy; **Pedro P. Tanaka, MD, PhD**, is a Clinical Associate Professor of Anesthesia; **Joshua S. Landy, MD**, is a Visiting Scholar; **Sarah M. Clark, MD**, is a Resident; and **Ronald G. Pearl, MD, PhD**, is a Professor and Department Chair.

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Corresponding author: Pedro P. Tanaka, MD, PhD, Department of Anesthesia H3580, 300 Pasteur Drive, Stanford University School of Medicine, Stanford, CA 94305-5640, 650.724.4066, ptanaka@stanford.edu

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## Methods

### Setting and Participants

The Stanford Anesthesiology Department is a university-based program with 70 full-time equivalent (FTE) faculty members and 72 residents in training and with an annual research budget of approximately \$6,500,000 in 2011. This assessment of the Teaching Scholars Program is based on the 3 cohorts who completed the program in 2007 (n = 6), 2009 (n = 7), and 2011 (n = 6).

### Intervention

**Admissions** The program is open to Stanford anesthesia faculty with 50% or greater FTE appointments and is offered for 12 months in alternating years. Faculty members self-nominate and are admitted on a competitive basis by a committee consisting of one resident, the Teaching Scholars director, the residency program director, and the department chair. Admission is based on:

- The applicant's career goals as an educator (in particular, demonstration of leadership or potential to become an educational leader);
- Positive resident evaluations of the applicant's teaching abilities and dedication; and
- The applicant's proposal to develop a project designed to improve the education of anesthesiology trainees.

**Program Curriculum** The program curriculum has several elements:

1. Department funding of travel expenses or tuition (up to \$2000) and 3 days of time normally expected for clinical duties made available by department funding for the Teaching Scholar to attend an off-site education-related meeting or workshop.
2. An onsite seminar held every 2 months with the following topics (1 hour each taught by study authors)—how learning works: research-based principles; needs assessment; determining goals and objectives; choosing educational strategies; and capturing useful assessment, implementation, program evaluation, and learner assessment. The seminars are intended to help focus the lesson on a topic relevant to each Scholar's goals and project development. Other seminars available to Scholars outside the department yet within the medical center emphasize additional themes in medical education, such as enhancement of teaching methods and evaluation strategies; promoting the scholarship of teaching, advising, and mentoring; and research in leadership and medical education. These activities lead to the Scholar building a personal library of articles on relevant topics in education for independent study.

### What was known

A number of institutions have created faculty development programs to enhance preparation of faculty for their teaching role.

### What is new

A faculty development program aimed at enhancing scholarly preparation of faculty in the Stanford University anesthesiology department was well-accepted and resulted in the development of added educational products.

### Limitations

Funds required to support faculty time and other expenses may preclude some institutions from developing a comprehensive program of this type.

### Bottom line

This educational innovation can be replicated in other departments of anesthesiology provided that funding is available to cover faculty time and meeting expenses.

3. Formulation and completion of a scholarly project related to education (the Teaching Scholars Project).

**Teaching Scholars Projects** The Scholar's project is the centerpiece of the program. It represents the culmination of the year's work; presentation at a meeting or workshop of the participant's choosing is encouraged. These projects are intended to become living modules permanently integrated into the residency training. Each Scholar performs a needs assessment in one area of anesthesia education and submits the proposal to the faculty committee. The methods of the needs assessment can be interviews with faculty and/or residents, analysis of resident and/or faculty survey results, reviewing prior annual program reviews and evaluation comments, department education committee meeting minutes/action plans, or Accreditation Council for Graduate Medical Education (ACGME) annual survey results. This needs assessment was individually driven by each faculty member and was done prior to the Scholar being accepted into the program (ie, candidates need to demonstrate they have a viable project before being accepted into the program). The checklist of criteria is provided as online supplemental material.

The Scholar designs a curriculum, teaching module, or resource, implements the completed project, and presents the completed project to the department. Projects are classified into 5 categories: administration or leadership, curriculum, teaching, assessment, and advising or mentoring.<sup>10-14</sup>

### Outcomes

Structured interviews with all Scholars were conducted, recorded, and transcribed by one of the authors (P.P.T.) in

Cohort	Year	No.	Instructor, No.	Assistant Professor, No.	Associate Professor, No.
1	2007	6	1	4	1
2	2009	7	1	3	3
3	2011	6	2	3	1

2012 using a pilot-tested questionnaire. The information collected included demographic information; list of education meetings attended as a Teaching Scholar; description of each Scholar's education project and whether the project was completed; and grants, abstracts, posters, publications, or presentations produced related to the project. The interviewer also determined whether graduates had pursued additional postgraduate or advanced study in education, or whether the participant acquired other roles or responsibilities in medical education (eg, educational committees, leadership roles) after the Teaching Scholar experience. Additional interview questions sought to determine how the program affected their role as an educator, what aspects of the program were most valuable, and whether any aspects could be improved. Descriptive statistics were computed to summarize the program results. The study was approved by the Stanford University Institutional Review Board as a Program Evaluation.

## Results

Between 2007 and December 2011, 19 faculty members (47% women) applied to, enrolled in, and completed the program. The median time from completion of postgraduate training to enrollment was 4 years (mean, 6.8 years; SD, 5.8 years; range, 2–25 years; TABLE 1). The most common type of project was development of a curriculum (53%; TABLE 2 and BOX). A total of 5 of the 18 projects not primarily classified as assessment were also deemed to

have an assessment component as a secondary goal. A total of 2 of the 10 curriculum projects had teaching as a secondary goal.

Projects proposed on admission were fully completed by 13 of 19 participants (68%), and 12 of the 19 projects are part of the residency curriculum. Completed projects were published ( $n = 1$ ) or were abstracts presented at conferences ( $n = 3$ ) by 4 of 13 participants (31%), and grants from the Stanford School of Medicine were received by 3 of 19 participants (16%). Many Teaching Scholars (68%) attributed some aspect of their professional advancement (eg, becoming rotation director or associate residency program director) to participation in the program (TABLE 3).

Overall, 16 of 19 Scholars (84%) attended an off-site education meeting, such as the Society for Education in Anesthesia, the ACGME Annual Educational Conference, the Program for Educators in the Healthcare Professions at the Harvard Macy Institute, and the Innovations in Medical Education meeting at the University of Southern California. A total of 5 of 16 Teaching Scholars attended more than one such meeting. With regard to faculty retention, 18 of 19 Scholars (95%) remain members of the department.

Based on feedback after each cohort, several changes were instituted to the program structure. These include emphasizing a tangible education project as a main deliverable of the program, fully incorporating a resident

Project	Cohort			Total, No. (%)
	1 (2007; n = 6)	2 (2009; n = 7)	3 (2011; n = 6)	
Administration/ leadership	0	1	1	2 (11)
Curriculum	1	5	4	10 (53)
Teaching	3	1	1	5 (26)
Assessment	1	0	0	1 (5)
Advising/mentoring	1	0	0	1 (5)

**BOX REPRESENTATIVE EXAMPLES OF EDUCATION PROJECTS BY THE STANFORD ANESTHESIA TEACHING SCHOLARS FACULTY**

- Feedback system for first-year residents during their month-long orientation program.
- A teaching module for transesophageal echocardiography and assessment tool.
- Standardized curriculum for regional anesthesia rotation.
- Curriculum for orthopedic anesthesia rotation.<sup>15</sup>
- Cognitive aids for critical perioperative events in the operating room.
- Postanesthesia care unit rotation teaching module.
- A global health website for the anesthesia department.
- Pediatric anesthesiology rotation: an online curriculum and prerotation/postrotation assessment.

into helping the Teaching Scholar identify a relevant project, and implementing a checklist of required elements. The most recent change has been a formal needs assessment of the entire residency to identify high-priority education projects (eg, instructional methods for operating room teaching, daily feedback) for application to the next cohort of the Teaching Scholars.

Feedback from the structured interviews indicates that graduates of the program reported that completion of the program resulted in enhanced ability in a number of areas, including “articulating my educational goals,” “being able to precisely identify their professional plans,” and “understanding my weaknesses as an educator and look[ing] for means to overcome [them].” One graduate reported plans to “participate in investigations to establish more evidence-based medical education.” Another stated, “The process of creating a new curriculum was instrumental in allowing me to realize all of the challenges inherent in teaching a group of trainees who are diverse in experience, skill sets, and knowledge.” Yet another participant noted it was rewarding to be “...part of a group working toward improving the residency program.”

**Discussion**

This is the first description of a faculty development (education) program in anesthesiology. Most of the 19 participants in the Stanford Anesthesia Teaching Scholars Program have been junior faculty (defined as having an academic rank lower than associate professor), with 84% of the Scholars attending an off-site education meeting.

Approximately half of the projects undertaken by the faculty focused primarily on new curriculum development, followed by innovative teaching modules as the second most common project type. From a residency leadership point of view, the program has evolved into a mechanism to update and institute long-term change to resident training, including ideas for new rotations. A total of 63% (12 of 19) of the projects completed by the Teaching Scholars have become a permanent component of the residency curriculum.

Published reviews of Teaching Scholars programs at other academic medical centers found that graduates had increased enthusiasm for teaching and educational research, along with increased numbers of publications, educational abstracts, editorials, chapters, books, and presentations at professional association meetings.<sup>16,17</sup> Compared with other Teaching Scholars-type programs, the project completion rate and project publication rate of the Stanford program appear somewhat lower. For example, 63% of the Stanford Anesthesia Teaching Scholars projects were fully completed, with approximately a quarter of these leading to presentation at an academic meeting. This may be due to our program and participants underestimating the need for protected time to devote to project work. To address this, one mechanism is to provide a greater amount of nonclinical

**TABLE 3 OUTCOMES OF THE TEACHING SCHOLARS PROGRAM**

Outcome	Cohort			
	1 (2007; n = 6)	2 (2009; n = 7)	3 (2011; n = 6)	Total, No. (%)
Project becomes permanent part of residency curriculum	3	5	4	12 (63)
Publication in journal or abstract presented at meeting	0	3	1	4 (21)
Grant	0	2	1	3 (16)
Promotion <sup>a</sup>	5	5	3	13 (68)
Further postgraduate study in education <sup>b</sup>	0	2	2	4 (21)

<sup>a</sup> Defined as a new educational responsibility, appointment, leadership role (eg, chair of education committee, rotation director, associate residency program director, and fellowship director).

<sup>b</sup> For example, a master's in academic medicine or a master's in global health sciences.

time incrementally based on a grant application type process. The support provided by the department would vary with project size and activity proposed.

During the program's 5-year existence, it has evolved based on the feedback from each cohort of participants. Going forward, the needs assessment and identification of projects will be more program driven than driven by each individual faculty applicant. Greater accessibility and more face time with mentors are being planned for the next cohort. Three new full-time faculty members have been added to the program's teaching staff, increasing the support and mentorship opportunities for the upcoming cohort. The cohort also will be meeting with increased frequency. Increased emphasis will be placed on having the Teaching Scholar specifically assess the level of success of the projects implemented for achieving their desired outcomes and goals.

Teaching scholar-type programs have been found to increase faculty retention, and our results support the acceptability of the program by participants. All but 1 of the 19 Scholars remain on faculty.<sup>18</sup> Graduates of the program reported they deepened their knowledge of educational scholarship, and particularly the importance and complexity of the science of education. Many participants identified how they have been influenced as an educator and had become more active in professional societies. Many participants found individual components of the program valuable. Some appreciated the time devoted to education and have added the Teaching Scholar designation to their curriculum vitae as a formal title. Many were appreciative of the opportunity to attend education-oriented meetings. Others specifically valued joining a community of like-minded scholars intent on improving education.

Our intervention has several limitations. For example, there was no measurement regarding whether pedagogic/teaching skills of the participants actually improved, or if they actually implemented some of the techniques learned. In addition, the outcomes of this group of faculty were not compared to those of another similar group (at another institution, for example) who did not have the intervention. Lastly, there was no evaluation of the quality of the end products. The article describes data obtained via a structured retrospective interview, which is vulnerable to recall bias. Many studies in this field are similarly dependent on self-reported data.<sup>19</sup> In the future, a series of prospectively defined, semistructured interviews could be used to avoid this problem. Also, the outcome data may change as additional data from longer follow-up are obtained.

## Conclusion

The Teaching Scholars intervention has benefited faculty development and advanced curriculum development and

other educational improvements in a department of anesthesiology. The program has been well accepted and has resulted in increased educational products, some of which have been added to the residency. The main cost to the department entailed funding travel expenses for the faculty to attend the education meeting, coverage for days when Teaching Scholars Program participants are relieved of normal patient care duties, and the cost of the program director to administer the program and organize seminars. The feasibility of implementing the Teaching Scholars Program in other medical centers may be affected by limited financial resources. In such circumstances, alternative funding mechanisms need to be considered, such as diffusing Teaching Scholars Program elements to a broader community (eg, a national specialty society) to capture some economies of scale.

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