**TRIOLOGICAL SOCIETY
CANDIDATE THESIS**

A Qualitative Analysis of Faculty Motivation to Participate in Otolaryngology Simulation Boot Camps

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Objectives/Hypothesis: To characterize factors that motivate faculty to participate in Simulation-Based Boot Camps (SBBC); to assess whether prior exposure to Simulation-Based Medical Education (SBME) or duration (years) of faculty practice affects this motivation.

Study Design: Qualitative content analysis of semi-structured interviews of faculty.

Methods: Interviews of 35 (56%) of 62 eligible faculty including demographic questions, and scripted, open-ended questions addressing motivation. Interviews were recorded, transcribed, de-identified, coded and analyzed using qualitative analysis software. Demographic characteristics were described. Emerging response categories were organized into themes contributing to both satisfaction and dissatisfaction.

Results: Three major themes of faculty motivation emerged: enjoyment of teaching and camaraderie; benefits to residents, patients and themselves; and opportunities to learn or improve their own patient care and teaching techniques. Expense, and time away from work and family, were identified as challenges. Faculty with many versus few years in practice revealed a greater interest in diversity of teaching experiences and techniques. Comparison of faculty with extensive versus limited simulation experience yielded similar motivations.

Conclusion: Enjoyment of teaching; benefits to all participants; and opportunities for self-improvement emerged as themes of faculty motivation to participate in SBBC. SBBC have unique characteristics which provide an opportunity to facilitate teaching experiences that motivate faculty.

Key Words: Simulation, medical education, boot camp, faculty, motivation.

Level of Evidence: 5.

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INTRODUCTION

Simulation-based medical education (SBME) may be focused on basic or complex technical skills, interpersonal skills, or combinations thereof,[1–4] and is based on principles of adult learning that include directed practice and timely debriefing.[5–7] SBME is revolutionizing medical education, and is endorsed, accepted, or required by the Accreditation Council on Graduate Medical Education (ACGME)[8]; the American Boardsof Medical Specialties (ABMS,)[9] medico-legal insurers[10]; and other regulatory bodies. SBME can be incorporated into a variety of educational structures,[11–13] and Ziv et al. challenge us to consider SBME as an ethical imperative.[14]

One-day Simulation-Based Boot Camps (SBBC) provide a unique educational model in which SBME is integrated into intensive courses for multiple participants. These "boot camps" have a high faculty-to-resident ratio, incorporate a large variety of participatory educational experiences concentrated into a rigorous day, and are notable for the enthusiasm they engender from faculty as well as from learners. SBBC are designed to allow hands-on practice and exposure to a variety of educational topics, learning situations, and teaching modalities for residents at the beginning of new stages in their education. The SBBC learning objectives are based on expert opinion and needs survey, and simulation models and settings are designed to optimize realism.[15] In contrast to the stereotype of military boot camps, SBBC are designed to provide psychological safety, supporting exploration and skill development in a nonjudgmental setting. Typically learners attend from the surrounding multistate region. Faculty is predominantly regional, but it also includes national and occasionally international participants.[1]

	2008	2009	2010	2011
	TABLE I.			
	Schedule of SBME Boot Camp Courses, by Month and Year.			
February	Pediatric Airway Foreign Body Endoscopy Course	Pediatric Airway Foreign Body Endoscopy Course	Pediatric Airway Foreign Body Endoscopy Course	Pediatric Airway Foreign Body Endoscopy Course
May				ORL Rising Chief Boot Camp
July			ORL Emergencies Boot camp	ORL Emergencies Boot Camp

ORL=otolaryngology.

The value of SBBC is appreciated by both faculty and learners.[2–4] A large number of active and engaged faculty is essential for successful Boot Camps, but factors that motivate faculty to participate are not well understood. As faculty are volunteers, understanding faculty motivation may be helpful in designing SBBC that attract and retain faculty. A search of Ovid medical and ERIC educational databases did not reveal any articles addressing faculty motivation for teaching in Boot Camp formats. Issenberg et al. comment that "little is known about how simulation training affects instructors" but do not specifically address faculty motivation.[16]

Qualitative research methodology, incorporating systematic reflection and inductive exploration of open-ended responses to probing questions, was used to overcome the limitations of closed-set responses and to develop explanations and allow the identification of factors that may not have been evident a priori.[17,18]

OBJECTIVES

Identify and characterize factors that motivate volunteer faculty to participate in SBME Boot Camp experiences.

Assess whether prior extent of exposure to SBME or duration (years) of faculty practice affects self-reported motivation to participate in SBBC.

STUDY DESIGN

Qualitative content analysis of semi-structured interviews; Coders blinded to faculty identity.

MATERIALS AND METHODS

Subjects: After obtaining institutional review board exemption, potential subjects were identified by reviewing faculty rosters from seven otolaryngology (ORL) SBBC courses conducted between 2008 and 2011. The original course focused on junior residents managing pediatric airway foreign bodies, the next on incoming ORL residents managing emergencies, and the third on rising ORL chief residents (Table I). Course structures have evolved over time. The 6 most recent courses have consisted of faculty orientation on a Friday evening and active learner and faculty participation for the entire subsequent Saturday.

Content from recent SBBC is described in Appendix I, and examples of simulators and simulations are included in Appendix IIa. SBBC are structured to facilitate interfaculty exchanges and diverse faculty experiences. Faculty generally teach in pairs, and, during the course of the day, faculty work with a variety of other faculty. Clinical case discussion sessions include two or more faculty, potentially providing diverse opinions.

Otolaryngology and pulmonology faculty who have participated in one or more SBBC were eligible. Course directors, keynote speakers who received compensation, and speakers who participated only in lectures or did not have access to e-mail were excluded.

All 62 eligible faculty were contacted by e-mail: 41 (66%) agreed to participate in a recorded telephone interview; and interviews for 35 (56%) of eligible faculty were conducted between July 26 and August 6, 2011. Interviews were conducted by a single investigator who had no personal knowledge of the subjects and had not participated in any SBBC. Verbal consent and demographic information was obtained during the interview.

Subjects were asked a scripted series of open-ended questions, followed by generic probes, for a maximum of 20 minutes (Fig. 1). Interview recordings were sampled periodically, and feedback was provided to the interviewer by the primary author. Recordings were transcribed. After demographic information and responses to questions were de-identified, transcripts were coded and analyzed.

Coding and Data Analysis

Baseline and demographic characteristics are summarized in a descriptive manner (e.g., means and standard deviations for continuous variables such as age; median and interquartile range for non-normally distributed variables such as years in practice; and percentages for categorical variables such as gender).

Responses to questions were coded and analyzed using qualitative analysis software (NVivo 9, QSR International; Victoria, Australia). Every interview was coded by one study investigator, and three investigators independently coded a subset of 15 (43%) of the interviews. Initial codes were generated by careful reading of the text, followed by the development of preliminary codes. The coding scheme was reviewed and expanded as additional transcripts were analyzed. Emerging categories were shaped into themes.

To enhance rigor and thorough coding, faculty with the least simulation experience ("none or little" and participation in only one SBBC) and the most simulation experience were identified and their coded responses compared. The responses of the faculty in the quartiles with the least versus the most years in practice were compared.

RESULTS

Responses were obtained from faculty from diverse geographic locations (Fig. 2); a variety of subspecialties;

Interview Guide

1. Tell me how you came to participate in the course

2. Tell me about your expectations for participation at that time

3. Did you have any particular aims at that time?

4. [If faculty has participated in more than one], can you tell me how your expectations have changed over time? Have your objectives or goals changed?

5. Are there any specific aims for yourself/for your own participation that you've added?

6. Now, let's move to your experience of participation – would you tell me about that?

7. Tell me about what you found most valuable about your participation

8. Tell me what you found most practically useful

9. Tell me about your experience of being a teacher in the course, sharing your knowledge with the learners

10. Tell me about how you interact with the other faculty

11. How do you feel you and the other faculty learn from each other?

12. How important is your own self-enrichment from participating in the Boot Camps or Endoscopy Course?

13. We've talked a lot about the reasons to participate as faculty; I wonder what you think are the challenges to participating?

14. Is there anything about the Boot Camp itself that detracts from your experience?

15. What factors would increase the likelihood of your participation in future Boot Camps or Endoscopy Courses?

16. Tell me what else we should know about faculty participation in simulation courses

17. Is there anything we have missed in our discussion today?

Fig. 1. Interview guide with questions for structured interviews.

academic and nonacademic practices; attendance at varying numbers of Boot Camps; and range of years, since the most recent Boot Camp attended. Most interviewees participated in SBBC in response to personal invitations from course directors. Eligible faculty partici- pants were predominantly from academic settings (n=31; 89%), self-identified as pediatric otolaryngologists (n=20; 57%, Fig. 3); and male (n=26; 74%). The prepon- derance of pediatric otolaryngologists may be related to the circumstance that the first series of SBBCs was
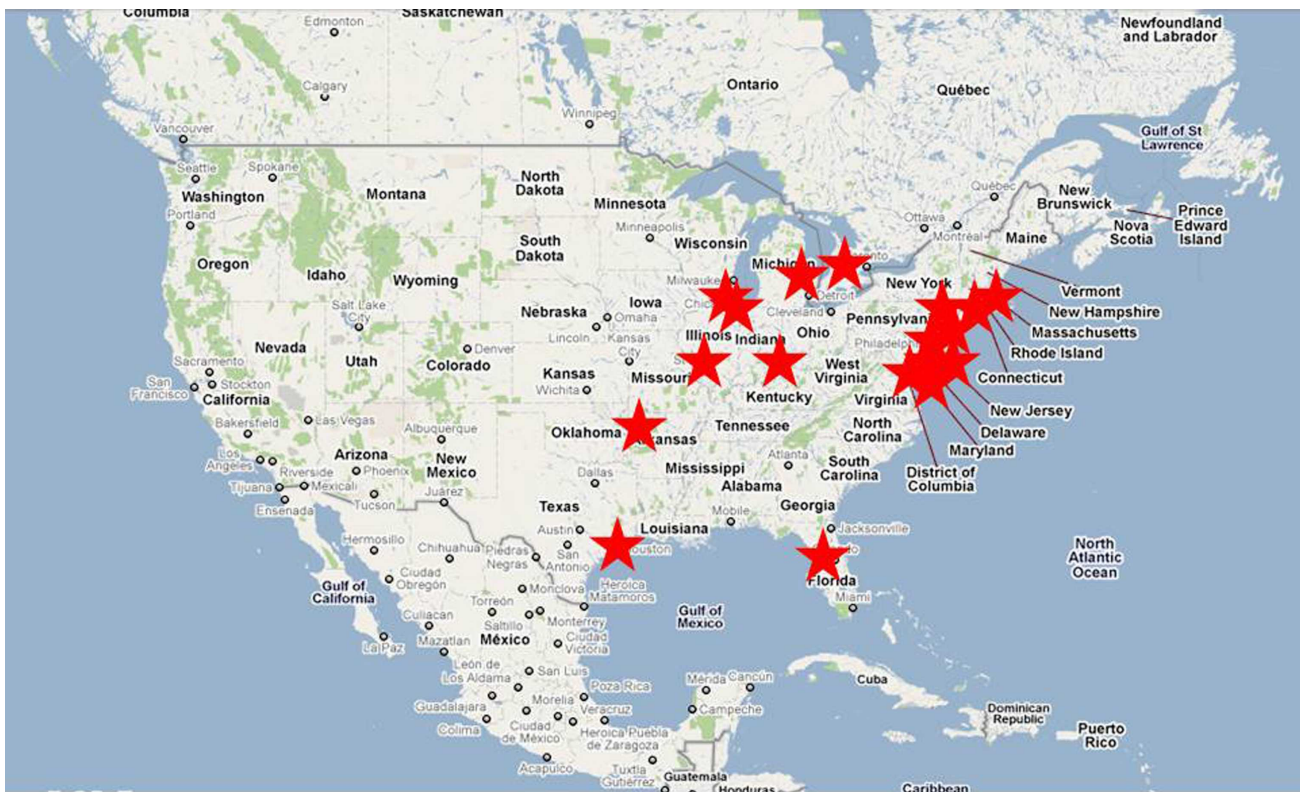
Fig. 2. home locations of faculty who participate in boot camps (map from www.maps.google.com accessed July 13, 2011). [Color figure can be viewed in the online issue, which is available at wileyonlinelibrary.com.]

developed by pediatric otolaryngologists, and it focused on pediatric foreign body aspiration.

Interviewees were evenly divided between those with little to no previous simulation experience (n=18, 51%) and those with moderate to extensive experience (Fig. 4). Median age of interviewees was 41 years (interquartile range 36.5, 50.5 years) and median years of experience after completion of training was 7 years (interquartile range 3.75, 16.5 years (Fig. 5). Additional demographics are presented in Appendix III.

Three major themes related to motivation emerged: enjoyment, benefit, and learning. Expense and time away from work and family were identified as challenges. Faculty with many years of practice versus few years of practice appreciated the diversity of participants. Faculty with extensive simulation experience versus limited simulation experience expressed similar motivations.

Each of the three themes related to motivation is described below, with examples of specific comments followed by abstractions of faculty responses.[19]

Enjoyment of Teaching and Camaraderie

"I really felt that the questions that they asked me were important and relevant and they really genuinely were looking for my answer, so that was gratifying for me. I thought the rest of the day was very educational, both for me and for the residents, actually. It was a good experience."

The majority of faculty reported intrinsic enjoyment of teaching, and found the SBBC structure allowed them to teach without the typical constraints that occur during actual clinical care. They appreciated the opportunity to explore the knowledge base of individual residents so they could tailor their instruction, as well as the opportunity to provide directed feedback in a timely and relaxed manner. Several interviewees commented that passion for resident education was a characteristic of other faculty members, also. Participating as an obligation was described infrequently.
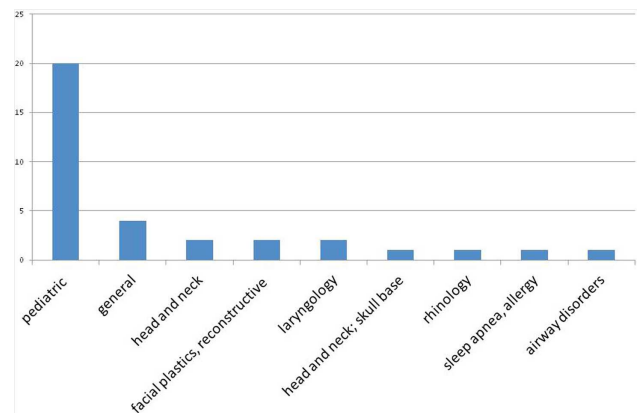

Fig. 3. Faculty specialties. [Color figure can be viewed in the online issue, which is available at wileyonlinelibrary.com.]
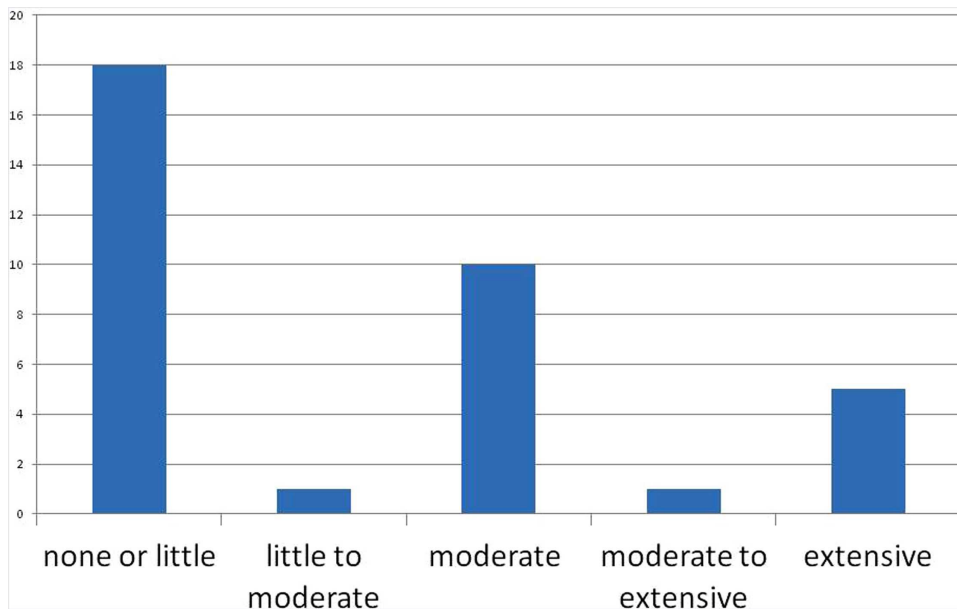
Fig. 4. Faculty simulation experience prior to first Simulation-Based Medical Education (SBME) Boot Camp course. [Color figure can be viewed in the online issue, which is available at wileyonlinelibrary.com.]

Faculty were motivated by residents who were eager, attentive, appreciative, and genuinely interested in receiving instruction. The nonjudgmental environment was conducive to resident exploration and learning.

Most faculty were also motivated by collegial interactions among faculty, including developing existing and new relationships. Respondents described the interactions between faculty as comfortable and supportive, and expressed appreciation that everyone's contributions were welcomed and valued. Appendix IV contains additional responses.

Benefits

"It was very safe environment for the residents to learn, and there really was not anyone that's really worried about being critiqued or being wrong . . . so I thought it was a very worthwhile experience to everybody."

"We're trying to get some simulation set up here with the residents. It's not been done before, . . . so I was hoping to get some experience . . . and maybe
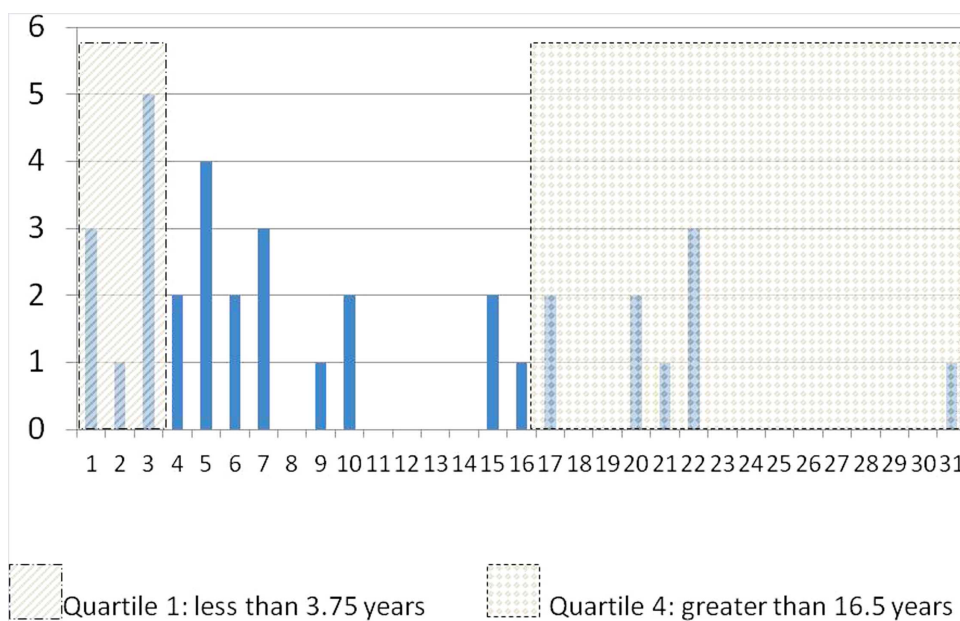

Fig. 5. Years in practice; median=7. [Color figure can be viewed in the online issue, which is available at wileyonlinelibrary.com.]

use some ideas for a general simulation thing that we could do with our residents back here."

[Faculty with limited simulation experience].

Almost all the faculty expressed benefit to residents as a major motivation. Several described the importance of curricula that addressed interpersonal skills and judgment as well as psychomotor and technical skills. Several faculty reported that they participated to provide benefit to the residents from their own programs, or that they brought their own residents to gain experience in specific content. Occasional interviewees articulated that learning in a simulation-enhanced setting avoids direct risk to patients.

Many faculty reported a desire to bring concepts back to their own institutions, including learning the logistics and planning involved in SBBC so that they could adapt SBBC for their own institutional or regional programs.

Some faculty were motivated by an atmosphere that they found to be conducive to collegial exchanges. Many faculty reported that they personally gained useful patient care knowledge, either by hearing other faculty discuss patient management or while observing other faculty demonstrate procedural techniques. Many faculty described personal professional growth in general terms. Some were motivated by the opportunity to use specific simulators that were not available at their home institutions.

When asked directly about self-enrichment, some faculty described this as an important motivating factor, others described this as a minor component of their participation. Appendix V contains additional responses.

Improving Teaching Skills and Techniques

"*What I found most valuable was that there was a broad range of many different faculty, with incredibly different backgrounds but with similar interest and focus on education, and different techniques and strengths and backgrounds, and so it was interesting, and that part of it was very fun, because you could see what other people do and how they do it, and you can compare notes and, get new ideas for ways that you might do something that you already do, a little bit differently.*"

[Faculty with many years in practice].

"*Sometimes you're in environments where people are pretty steadfast and someone presents an idea and you know that your first instinct is going to be to kind of think of reasons why that's not a good idea, but I think that the environment that we were in here allowed us to all feel that, if someone presented something, it was worth thinking about. . . . I learned that you can create environments when you're teaching that allow that to happen.*"

[Faculty with limited simulation experience].

A large number of comments describe the value of SBBC in providing opportunities for faculty to improve

their own skills. Faculty reported that they were motivated by exposure to other faculty with diverse backgrounds, experiences, ideas, and techniques. Occasionally, new faculty pairings during Boot Camps required adjustments to coordinate teaching styles, but overall this diversity was valued.

Many faculty identified specific aspects of the simulations that were new to them and could be applied to their own learners. Appendix VI contains additional responses.

Challenges

I think [time is] the major challenge . . . there's some travel situations, and that involves some expense, but mostly it's the time.

Expense and time away from work and family were frequently identified as challenges. Direct expenses were primarily related to travel costs and housing. Additionally, although faculty enjoyed opportunities to observe others, they did not want excessive "downtime."

Analysis of Subgroups

"*I thought it was a great deal of fun, because we weren't all from the same background. . . . it was a nice cross section of otolaryngologists, . . . we learned a fair amount from each other, and that was enjoyable for me.*"

[Faculty with many years in practice].

Two subgroups were analyzed, based on years in practice and simulation experience. Faculty from the quartile with the most years in practice appreciated diverse faculty backgrounds and approaches to teaching more. Different amounts of simulation experience did not affect responses.

DISCUSSION

Three major themes emerged from this qualitative analysis: enjoyment, benefit, and learning. Time away from work and family, as well as expense, were the major challenges. SBBC have unique characteristics based on both their structure and their content, which facilitate experiences that motivate faculty.

Although not all of our faculty were in academic practices, all expressed a desire to teach, and it is certainly in our patient's best interests that our residents are well trained.[20] Our systematic review of the literature identified no other studies that addressed motivation to participate in teaching in Boot Camp types of settings; but those that evaluate faculty motivation to teach more generally typically highlight characteristics of altruism and self-improvement. A systematic review of aspirations positively influencing career choices in academic medicine identified the desire to teach among the most significant factors.[21] Within otolaryngology, a survey of academicians in the mid 1980s identified desires for self-actualization ("to be as good as we can

be"); and to better use skills, expand interests, solve problems, and exercise curiosity.[22] A subsequent survey approximately a decade later concluded that "the single most important reason motivating selection of an academic career was a desire to teach."[23] Although SBBC provide a new context, this study is congruent with previous studies.

Despite this desire, there are many factors that challenge our ability to teach, including clinical workloads, medico-legal issues, business pressures,[22] and resident work hour restrictions. During the SBBC, these distractions are minimized; faculty spend an intensive day engaged in active, direct teaching exercises with minimal encumbrances.

In addition to a unique educational structure, the SBBC incorporate unique educational tools. A variety of simulators were used. Some are not easily accessed outside of the Boot Camp opportunity; some are known to faculty but are used in novel ways; and some are entirely novel. Faculty participating in SBBC can explore a broad sampling of simulators in a participatory manner, and exchange ideas with colleagues in the same exploratory, nonjudgmental atmosphere that is provided to the residents.

With respect to faculty subgroups, diversity of clinical backgrounds and experiences was a more important motivation for faculty with the most years in practice. Experienced faculty have had more time to develop their own teaching techniques, and may be very selective in incorporating new ideas. Exposure to a variety of ideas and experiences provides opportunities to develop fresh or more nuanced understanding and techniques.

It is surprising to find very similar themes of motivation for faculty with the least and the most simulation experience, despite their apparent polarity. Explanations could include self-selection (ascertainment bias) for participation in either SBBC or the interviews. It also may indicate that similar motivations transcend these differences in experience.

The most prominent challenges to participation include the time and expense involved; these challenges affect every aspect of healthcare education.

This qualitative approach was used to elucidate faculty insights that might not become apparent using a traditional survey design with a priori assumptions or traditional quantitative analysis techniques. Qualitative findings are more detailed and variable in content, and analysis is difficult because responses are neither systematic nor standardized, but the open-ended queries allow researchers to understand the points of view of the subjects without predetermining response categories.[17]

Limitations

Faculty who participate in SBBC are self-selected and those who were willing to be interviewed may have been particularly enthusiastic or particularly negative about Boot Camps. Faculty may have self-censored their responses. Additionally, qualitative analysis includes the potential for bias occurring during the interviewing, coding and analysis processes.

CONCLUSION

In order to recruit and retain faculty for SBBC, it is important to understand their motivations. Enjoyment of teaching and camaraderie; benefits to residents, patients, and themselves; and opportunities to learn or improve their own patient care and teaching techniques emerged as leading elements of faculty motivation. Time away from work and family, as well as expense, were the major challenges.

Motivated faculty are essential for effective and valuable SBBC. To be successful, boot camp organizers will need to continue to design boot camps that incorporate the factors which provide satisfaction and enjoyment for faculty.

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