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How does a mid-career faculty development program in academic medicine impact faculty and institutional vitality?

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HOW DOES A MID-CAREER FACULTY DEVELOPMENT PROGRAM

IN ACADEMIC MEDICINE IMPACT

FACULTY AND INSTITUTIONAL VITALITY?

by

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DEDICATION

I would like to dedicate this work to my students in the Boston University Master of Science Program in Genetic Counseling. You are my inspiration for becoming a better teacher and mentor.

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ABSTRACT

Background: Faculty vitality is integral to the endurance of higher education. Strengthening vitality is particularly important for mid-career faculty, who represent the largest and most productive segment, but also the most dissatisfied. While the mid-career phase is particularly vulnerable, the backdrop of academic medicine appears to be another factor that may put faculty at risk of attrition. To address these issues, Boston University School of Medicine initiated the Academy for Collaborative Innovation and Transformation (ACIT), a ten-month mid-career faculty development program consisting of six two-day interactive learning modules and multidisciplinary group projects.

Methods: This study is a mixed-methods evaluation of ACIT using a quasi-experimental design to assess the program's impact on faculty and institutional vitality. Pre-post surveys compared participants with a matched reference group. The quantitative data were augmented by interviews and focus groups with participants, senior leadership, department chairs, and ACIT staff members. **Results:** At the program's conclusion, ACIT participants showed marked gains in knowledge, skills, attitudes, and connectivity when compared to the referents. Results also indicate that the program was largely

successful in equipping participants to accomplish the four primary learning goals: to

self-reflect and pursue an individual development plan; to connect longitudinally to one's

peer cohort and to the larger organization; to collaborate effectively with colleagues

across disciplines, sectors, and roles; and to enhance ability to implement transformative

work. Lastly, the majority of didactic sessions were rated highly for both content areas

and speakers, while the group projects and learning communities received mixed reviews.

Based upon these results, recommendations were made to improve the design, execution,

and costs of the program. **Conclusion:** Given that mid-career faculty development in

academic medicine has not been extensively studied, this evaluation is able to provide a

novel perspective to guide future initiatives aimed at this specific subset of higher

education.

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CHAPTER ONE: Introduction

Rationale

In 2007, the Association of Academic Health Centers conducted a survey of academic medical center CEOs, and their results indicate that the number of faculty in medicine, pharmacy, and allied health is no longer adequate to meet the needs of students and society. In addition to insufficient staffing, the American healthcare enterprise is also being threatened by growing concerns of burnout, which has been negatively correlated with providers' health, job performance, productivity, professionalism, empathy, and compassion, as well as patients' satisfaction and adherence, and faculty/staff retention (Shanafelt, 2009; Zwack & Schweitzer, 2013). According to the 2015 Medscape Physician Lifestyle Report, 46% of all physicians reported experiencing burnout, which was up from 40% in 2013 (Peckham, 2015). The issue of burnout appears to present early, as both medical students and residents are more likely to be burned out compared to the general population (Dyrbye et al., 2014). In addition, mid-career physicians (defined as those with 11-20 years' experience) report the highest rates of emotional exhaustion and burnout (Dyrbye et al., 2013).

Burnout, which can be characterized by bitterness, pessimism, mental and emotional exhaustion, and decreased clinical confidence, represents a "deterioration of values, dignity, spirit, and will" which leads to an "erosion of the soul" (Spickard, Gabbe, & Christensen, 2002, p. 1447). This level of extreme dissatisfaction is costly for many parties: the healthcare providers themselves, as well as their families, patients, colleagues, and medical centers. To address this dilemma of a deficient and disengaged

workforce, a two-fold approach will be required: train more healthcare providers, and increase the satisfaction and retention of those already employed. However, for either of these goals to be accomplished, we must first pay heed to the importance of faculty vitality in academic medicine.

In all spheres of higher education, faculty vitality is essential to the strength and endurance of an institution. As defined by Random House, Inc., vitality is the capacity for survival or for the continuation of a meaningful or purposeful existence (2014). In the context of academia, Clark and Lewis (1985) defined vitality as "the capacity of the college or university to create and sustain the organizational strategies that support the continuing investment of energy by faculty and staff, both in their own careers and in the realization of the institution's mission" (as cited by Canale, Herdklotz, & Wild, 2013).

In comparison to their counterparts, vital professors appear to have more concrete goals, multidimensional responsibilities, fluid careers, and evidence of risk-taking, innovation, and collaboration. They also seem to have more access to sources of professional stimulation and achievement, and they take fuller advantage of professional growth opportunities (Baldwin, 1990). The link between vitality, engagement, and collaboration was illustrated by LaCelle-Peterson and Finkelstein, who wrote that "teaching is isolated and poorer for that isolation. Without periodic opportunities to revitalize their professional lives generally and their teaching lives in particular, faculty members report that their teaching vitality tends to slip" (1993, p. 24).

Vitality is a multi-dimensional construct that contributes greatly to an individual's sense of self, satisfaction, and purpose, and therefore must be continuously strengthened.

Such reinforcement is particularly important for mid-career faculty, as this group typically constitutes the largest and most productive segment of the faculty, yet they tend to be the most dissatisfied as well (Romano, Hoesing, O'Donovan, & Weinsheimer, 2004). In addition, they often express feelings of loneliness and separation (Canale et al., 2013), and they report finding it difficult to stay current in their fields as their expertise becomes obsolete (Strage, Nelson, & Meyers, 2008). As faculty enter mid-career, they also find decreased opportunities for mentoring, feedback, and professional development, all of which can lead to second-guessing their personal values and identity. This lack of conviction and direction can cause a highly-motivated, successful individual to unexpectedly seek a dramatic career shift (Golembiewski, 1978). Alternatively, mid-career faculty may feel that they have simply reached a plateau and lack a vision for advancement, even if there are still professional opportunities available at their institution (Canale et al., 2013). As such, there is growing concern that the pending retirement of baby boomers will lead to vacancies in higher education leadership, which means that mid-career faculty need to be encouraged to pursue paths in academic administration (DeZure, Shaw, & Rojewski, 2014).

Since mid-career professionals and the healthcare sector are both vulnerable to diminishing vitality, it seems likely that academic medicine may be a particularly risky backdrop for burnout and attrition (Zwack & Schweitzer, 2013). To begin with, mid-career physicians (11-20 years) report working more hours, having lower satisfaction with their work-life balance and their chosen specialty, and being more likely to leave the field of medicine in comparison to their early-career and late-career counterparts, and

these trends are experienced across specialties and in both women and men (Dyrbye et al., 2013). While physicians outside of academia are able to focus solely on patient care, academic healthcare providers have the additional responsibility of teaching and training the next generation (Straus, Soobiah, & Levinson, 2013), while working longer hours at lower salaries to do so (Cropsey, Masho, Shiang, Sikka, Kornstein, & Hampton, 2008). Therefore, clinicians may view careers in academic medicine as unappealing due to the financial sacrifices required and the pressures of teaching and/or research (Kelly, 1990; Ries, Wingard, Gamst, Larsen, Farrell, & Reznik, 2012). These worries are compounded by the significant educational debt load and family responsibilities often experienced by healthcare providers in general (Ries et al., 2012).

Ultimately, faculty burnout impacts faculty retention, which can create downstream problems for an institution. To be precise, a 2007 survey by Lowenstein, Fernandez, and Crane found that 42% of medical school faculty members were seriously considering leaving academic medicine within the next five years, with current attrition rates being disproportionately high for women and minorities (Association of American Medical Colleges, 2008). Without question, losing medical faculty is costly in morale, institutional expertise, and patient access, with the economic burden of one faculty departure ranging from $100,000 to $600,000 per person (Schloss, Flanagan, Culler, & Wright, 2009). In turn, the issue of retention poses a real threat to the educational infrastructure of health professions.

Despite this dangerous landscape, clinician-educators *want* to stay committed and vital. However, it often takes clinicians 5 to 15 years to feel that they have become true

educators and scholars, with each step being met by new obligations and demands (Heinrich & Oberleitner, 2012). The majority of clinician-educators who remain dedicated to their post do so because they see it as their calling. This internal struggle was well-articulated by Dr. Clark Denniston in a 2008 essay published in the *Society for Teachers of Family Medicine* journal:

"Bloodied but unbowed, medical educators today face vast challenges. Clinical revenue generation, incentive models for salary determination, relentless pressure to see more patients, intrusive mandates from accrediting bodies, and shrinking educational budgets are forces that can, if allowed, break the spirit of those of us called to be teachers. It doesn't take long for clinician-teachers to decide, when pressured by clinical productivity, that the first thing to dump is their commitment to our educational mission. After all, in most of our academic settings, teaching is unreimbursed and therefore, by association, undervalued. Although tempting to do so, dumping that commitment is tantamount to breaking a contract with our souls" (p. 134).

The significance of vitality for mid-career faculty in academic medicine suggests the need for targeted faculty development programs. In 2008, Baldwin, Dezure, Shaw, and Moretto assessed the experiences of mid-career faculty through a cross-section of interviews, identifying themes of high expectations (particularly related to research, grants, and leadership / administrative roles), neglect (feeling that the institution focuses its energy on new or star faculty), relief (ability to shift from the short-range goal of tenure to long-range projects), reassessment (answering the confusing and intimidating

question "What's next?"), and adaptation (how to remain competitive, knowledgeable, and connected). However, Baldwin and Chang (2006) found that very few initiatives have addressed mid-career issues in a comprehensive manner. In turn, they developed an expansive model that focuses on three primary goals: 1) career reflection and assessment, 2) career planning, and 3) career action and implementation. To accomplish these goals, they proposed that a program should provide a solid foundation through collegial support (e.g. mentoring, networking, and collaborating), resources (e.g. information, time, funding, and space), and reinforcement (e.g. recognition and rewards). In 2013, Pastore performed a qualitative study of faculty interviews assessing opinions of the Baldwin and Chang model, and the results indicated high levels of faculty support for each of the three primary goals.

While mid-career faculty development has been gaining ground in higher education, there has also been increased focus on faculty development in the context of academic medicine. In 2006, Steinert et al. performed a meta-analysis of faculty development programs in medical schools, finding that positive changes in attitude, increased knowledge, and gains in teaching skills were most commonly associated with programs designed around experiential learning, diverse instructional methods, nurturing of peer relationships, and provision of feedback. Although Steinert's work highlights the importance of faculty development on medical campuses, it doesn't address the unique experiences of the mid-career cohort. In fact, there appears to be a paucity of mid-career faculty development initiatives designed specifically for medical schools, which marks a clear need for the next stage of research in this arena.

To adequately address this gap, we must first determine the factors that contribute to dissatisfaction among mid-career medical faculty. One answer may lie in the changing landscape of tenure policies. While tenure positions were historically used to recruit and retain exceptional faculty by providing stability and academic freedom, they are now being blamed for interfering with institutions' financial solvency and educational quality. Over the past 25 years, the number of clinical faculty in medical schools has more than doubled while tenure-track positions have been cut in half (Bunton & Corrice, 2011). Concurrently, medical schools have experienced a dramatic reduction in federal research funding and reliable clinical income (Barzansky & Kenagy, 2010), putting more pressure on faculty and administrators to narrow their focus to increase productivity and impact. In order to survive, institutions have come to rely on faculty with individual expertise in research, teaching, _or_ patient care. These concentrated roles are misaligned with the antiquated promotion criteria that were designed for the "triple threats" of a bygone era, making it increasingly difficult for medical schools to reward faculty members for their specialized skills (Coleman & Richard, 2011). Meanwhile, many faculty are struggling to establish their careers due to the time famine that results from increased expectations for clinical productivity and grant submissions (Bunton & Mallon, 2007), which may perpetuate the assumption that faculty must continually reinvent themselves in order to remain financially secure.

In response to the economic climate and faculty evolution, a record number of medical schools are considering changes to their tenure policies. Many schools are implementing longer probationary periods, decreasing salary guarantees, proposing

alternative advancement tracks, instituting post-tenure reviews, and expanding their definitions of scholarship (Jones & Gold, 2001; Bunton & Mallon, 2007; Bunton & Corrice, 2011). For many, the origins of tenure are hardly recognizable, with the emergence of a system that is becoming increasingly more symbolic than practical.

With the future of tenure remaining hazy, faculty may feel that the path to success and promotion is unclear. In turn, this lack of direction may be negatively impacting the level of faculty vitality that is required for a medical school to accomplish its tripartite institutional mission. Therefore, it will become imperative for medical schools to embrace new strategies to maintain faculty commitment and productivity, particularly from those in the mid-career stage.

Figure 1. Factors Influencing Mid-Career Faculty Vitality
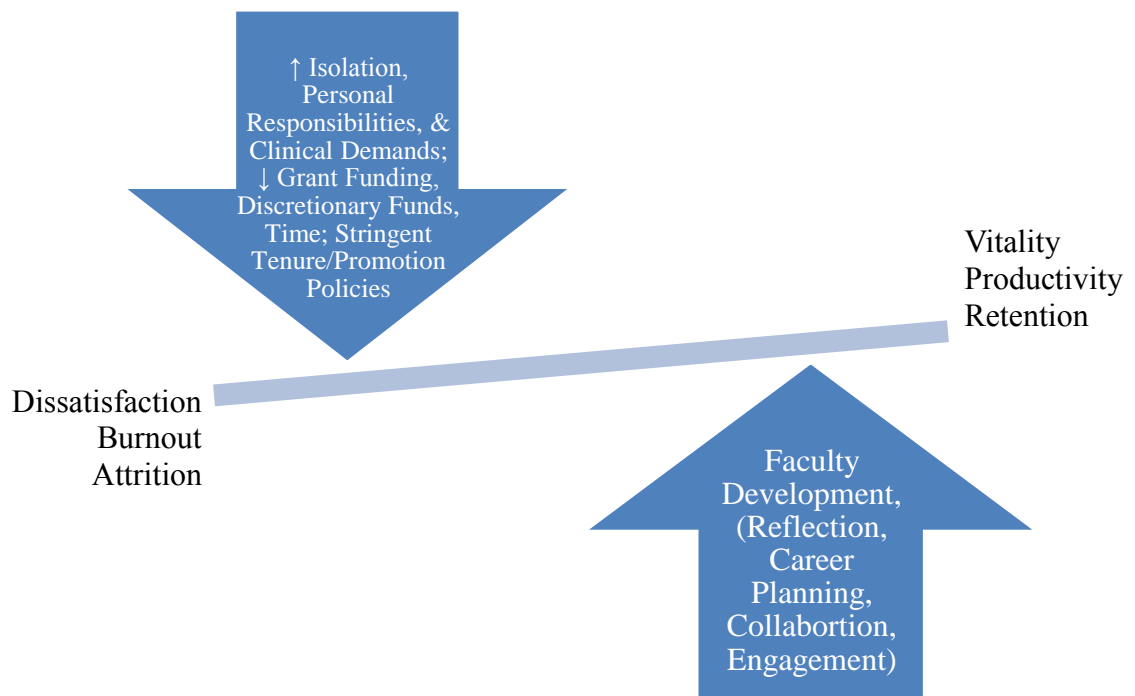
It stands to reason that there are lessons to be learned from non-tenure medical schools, as they have long-standing experience with supporting faculty through alternative advancement and promotion policies and curricula. At this time, BU School of Medicine (BUSM) is one of only six non-tenure medical schools in the US, making it a natural environment for a comprehensive mid-career faculty development program to serve as a model for design and an opportunity for evaluation. In addition, there are concerning indicators regarding faculty vitality and commitment on the Boston University Medical Campus (BUMC). For example, the 2013 Physician Group Employee Engagement Survey ranked Boston Medical Center (BMC), which is BUSM's primary teaching hospital, at the 8th percentile, showing that clinical faculty had substantially less commitment to the workplace than the national average. In particular, BMC scored lower than average for satisfaction related to sufficient time, pay, staffing, and resources, as well as work-life balance, effective communication, and job stress.

To address these issues, multi-disciplinary and multi-career stage faculty members and institutional leaders from throughout BUMC were selected to serve on the 2013 Mid-Career Faculty Development (MCFD) Task Force which met twice per month to review the literature, identify best practices from peer institutions, and develop a comprehensive program aimed at meeting the specific needs of mid-career faculty members. The Task Force proposed implementing a year-long program designed to have a positive influence on faculty engagement, address pressing needs identified by institutional leaders, and increase faculty capacity to innovate and collaborate effectively across disciplines. In turn, the Academy for Collaborative Innovation & Transformation

(ACIT) was created to answer the research question that is the basis of this dissertation:
How does a mid-career faculty development program in academic medicine impact
faculty and institutional vitality?

CHAPTER TWO: Literature Review

The design of the ACIT program and the proposed evaluation were informed by a comprehensive review of the literature focusing on four key areas related to mid-career faculty development: (1) the needs and experiences of mid-career faculty, (2) barriers to vitality for mid-career faculty, (3) existing mid-career faculty development programs, and (4) qualities of successful mid-career faculty development programs. The evaluation design was further enhanced by studies related to (5) changing tenure policies in academic medicine and (6) theoretical frameworks and evaluation designs utilized in faculty development.

Needs and experiences of mid-career faculty

Unfortunately, there is no universal definition of mid-career faculty, making efforts toward addressing their needs a moving target. For individuals who quickly climb the academic ladder, mid-career may arise in the late 30s or early 40s. Yet there will be others who enter academia as a second or third career and thus don't reach the mid-point of this career until much later in life. In addition, some faculty, particularly women, may take a longer path or a hiatus in order to attend to their family, thus lengthening the timeline of their journey. Each of these external factors will play a role in when and how someone identifies with being "mid-career" (Romano et al., 2004, Baldwin et al., 2008). Despite the lack of definition, we do know that this faculty cohort is critical to higher education. "Mid-career faculty are the keystone of the academic enterprise. They fill essential instructional, program development, administrative, and citizenship roles at their

institution. They form a bridge between faculty generations by mentoring new colleagues and assuming leadership duties as their senior colleagues move toward retirement" (Baldwin & Chang, 2006, p. 28).

Only a handful of formal studies have been performed to assess the needs and experiences of mid-career faculty. In 2005, Baldwin, Lunceford, and Vanderlinden characterized the academic experiences and quality of life of professors throughout their careers. They analyzed data from the National Study of Postsecondary Faculty (NSOPF-99) which included information such as academic and professional backgrounds, workload, satisfaction, employment status, and responsibilities. Their results showed that the amount of time devoted to internal professional activities decreased over time, while the amount of time devoted to external activities increased until the middle years and then declined in the later years. Late-career faculty reported the highest percentage of time spent on teaching duties, while the highest percentage of time spent on administrative duties was in the middle years and the highest percentage spent on research and service was in the early years. Regarding productivity, article production appeared to peak in the middle years with book and chapter production peaking in the later years. The study also found that the middle years contain the highest percentage of dissatisfied faculty.

Another important study on mid-career faculty came from Baker (2005), who conducted a life history study of music teachers to assess their views on pedagogical competence and career prospects as they approached mid-career. The results suggested that teachers between the ages of 36 and 42 often reach a professional crisis, plateau, or apex. This critical and uneasy phase is heightened by a feeling of pedagogical

effectiveness mixed with career limitations, which may result in the questioning of personal and professional identity. The mid-life / mid-career experience is thus a time when significant events and transitions may cause faculty to pause and rethink their aspirations and commitments. Such a time of reassessment has the potential to lead to either positive or negative consequences for the home institution.

Meanwhile, Baker-Fletcher, Carr, Menn, and Ramsay (2005) summarized results from a workshop for theology professors aimed at assessing the challenges and opportunities that arise for mid-career faculty. Participants viewed mid-career as an opportunity for deeper investment in one's teaching skills, but they also voiced frustration with challenges related to the increasing generational gap between themselves and their students, assuming more administrative and mentoring responsibilities over time, rising competition for research funds, and feelings of fatigue and/or isolation within the institution. Many participants spoke about the pursuit of striking a balance between teaching and scholarship.

A fourth comprehensive study came from Baldwin et al. (2008) through interviews with 20 randomly selected mid-career faculty members at Michigan State University representing a range of disciplines. Their results indicate that mid-career faculty want 1) individualized and diverse support systems, 2) clear information on expectations, pitfalls to avoid, and paths to pursue, 3) training in leadership skills, conflict resolution, and career development, and 4) an open discussion on how to change career paths and/or collaborate with other disciplines.

Barriers to vitality for mid-career faculty

Understanding the needs and experiences of mid-career faculty in higher education is an important perspective, but one must also examine the roadblocks that hinder faculty from sustaining their intellectual vigor. Unfortunately, there are many hurdles encountered by faculty at the personal, organizational, and institutional levels.

Institutional and departmental support. In a compelling graduate seminar paper titled "Reviving the Deadwood," Kelly (1990) addressed the importance of institutional climate in encouraging the professional growth and revitalization of mid-career faculty. She described several toxic factors that often occur at the institutional level related to departmental culture, faculty workload, changing student populations, and the tenure and reward structure. She also discussed diminished faculty vitality through the concept of "yellowed lecture note syndrome" which signifies that the professor has either lost enthusiasm for their field due to boredom and repetition or due to a shift in personal interests. Either way, the students are left feeling frustrated by being given outdated material and feeling unprepared for the job market. Similarly, Awando, Wood, Camargo, and Layne's faculty interviews based on the Social Cognitive Career Theory (SCCT) identified institutional climate as one of the four major concerns for mid-career faculty (2014).

Another commonly voiced concern focuses on the controlling power and unsupportive nature of many department chairs, making it clear that fairness and communication are crucial leadership skills that aren't always well-developed (Laursen & Rocque, 2009). This notion of transparency and equity is not as straightforward as it may

appear. Baldwin et al. (2008) interviewed 20 department chairs and school directors and found that the biggest barriers to faculty development support are time and money. In addition, these administrators were often unaware of programs that already existed to support mid-career faculty. Interestingly, the interviews uncovered differing views on whether 1) mid-career faculty need and deserve individualized support, 2) expectations for advancement should be broadened, 3) details about the deliberations for promotion and tenure should be revealed, and 4) all faculty should receive the same type of review. In turn, many mid-career faculty members do not receive timely, performance-based, actionable feedback, which is integral to remaining productive and vital. Therefore, faculty development initiatives must bear in mind that the expectations and needs of mid-career faculty do not always align with the opinions of their superiors. Disappointingly, this lack of support for faculty development in higher education is vastly different from what is experienced in many industries. The highest performing companies have been shown to spend significantly more on leadership development, which suggests that such training is worth the investment (Bersin, 2014).

Internal forces. While it is easy to blame one's department or institution, it is also important for faculty to look internally to see what may be impeding their progress. For instance, Baldwin et al. (2008) concluded that mid-career faculty members often have unclear goals and vague performance expectations. This lack of direction may lead to disengagement, which can have disastrous consequences for faculty as they enter the late stage of their careers. "I looked around at faculty… and I was really frightened by how many bitter old men there were… You've got to figure out how to make people want to

come to work when they are 60 years old" (Baldwin, 2008, p. 52). In addition to setting explicit goals, mid-career faculty members also need to establish metrics to assess their progress in order to provide motivation and clarity (Strage et al., 2008).

Another internal barrier is related to a lack of buy-in and compliance. For instance, Belker (1985) speculated that the faculty members who most need development are often the ones who are most resistant to participating. This resistance can stem from their traditional educational background, their own fear of change, or their belief that the focus of faculty development should be on new or incompetent faculty. Resistant faculty members assume that their many years of experience eliminate the need for such programs, while in reality most faculty have had very little, if any, formal training in the art of teaching. To counter this argument, Belker suggested that mid-career initiatives be designed around the premise that mid-career faculty have accrued the necessary experience to be able to reflect on their teaching philosophy and practice, as well as their effects on student learning. In addition, deans and department chairs must be vocal and willing to lead by example if they want any chance of participation from resistant faculty.

Work-life integration. Work-life integration, or a lack thereof, is another clear barrier to the resiliency and productivity of mid-career faculty. At an American Society of Pediatric Hematology Oncology workshop in 2008, participants were assigned to group discussion tables based on self-identified career stage (mid-career or senior). Each group was asked to describe the challenges that were most notable at their stage and compose a summary detailing the settings or roles in which the challenges occur and suggestions for what an individual or organization might do to address them. The

majority of challenges identified by the mid-career groups were associated with the themes of *Balance and Burnout* and *Workload and Compensation* (compared to senior groups, which were more likely to note challenges related to *Succession and Management*). In particular, participants noted the need for balance between professional and family responsibilities, including the care of children and aging parents, and a fear of burnout and/or adverse effects of their current workload on their personal health (Frugé et al., 2010).

To this end, institutions would benefit from allowing faculty to develop scholarly paths that reflect their individual values and goals. Banks (2012) noted that faculty's struggles to meet personal, professional, familial, and communal demands can have a detrimental effect on their long-term well-being. Additionally, workloads that require faculty to put in extra hours during the evenings and weekends create unappealing role-models for junior faculty and graduate students, which could lead the next generation to question the value of academic careers if it appears that they preclude meaningful personal lives.

Boyer's 1990 model of scholarship argues that "the mission of higher education must be redefined to more directly address the needs of contemporary societies, and the meaning of scholarship must be reconsidered to encourage the valuing and rewarding of a broad spectrum of creativity" (Banks, 2012, p. 352). Banks contends that fostering Boyer's model, which divides scholarship into discovery, integration, application, and teaching, can be an effective strategy to improve faculty retention. Therefore, faculty development programs should encourage faculty to engage in self-reflection and

evaluation, especially during major transitions, to ensure that their academic activities are meaningful to their professional goals and congruent with their personal values.

Existing mid-career faculty development programs

The literature discussed above confirms that mid-career faculty are critical to the workforce, yet vulnerable to its dangers. While some authors have merely studied the needs and experiences of mid-career faculty, others have used these findings to create and implement mid-career faculty development programs. In 2006, Baldwin and Chang conducted a national web-based survey to identify the policies and programs in place to support mid-career faculty at colleges and universities. They found that mid-career faculty development initiatives are emerging at many levels, including individual institutions, consortia of schools, and national organizations. This is particularly important for small schools that can now leverage resources from neighboring schools or professional groups to meet the needs of their faculty.

Although mid-career faculty development programs vary in structure, approach, and purpose, they often focus on one of six goals (Baldwin & Chang, 2006). The first category is mid-career awareness and information resources, typically utilizing websites and publications. Another group targets career planning, development, and renewal, through which the programs ask faculty to reflect upon their professional experiences, identify new goals, acquire new skills, and establish tangible career plans. A third category relates to mentoring and networking aimed at promoting professional growth, exchanging ideas, and increasing productivity. The fourth group of programs aims to help

faculty update and expand their teaching skills and establish interdisciplinary relationships. For example, some institutions provide mini-grants to mid-career faculty who are changing the direction of their pedagogy. The final two categories are related to research support (e.g. providing "bridge funding" for faculty between grants) and awards (e.g. providing recognition and reinforcement for outstanding teaching, service, and research).

One of the most comprehensive initiatives to date comes from the University of Minnesota's Center for Teaching and Learning Services (CTLS). In 1998, they developed a year-long initiative for "experienced" faculty. Rather than defining "mid-career," they chose to open up the program to all post-tenured faculty who wanted to "refine their professional identities to fit their current goals and situations, and to adapt their teaching styles to meet the demands and expectations of today's students" (Romano et al., 2004, p. 26). Rather than focusing on the instruction of specific teaching skills, the CTLS program administrators focused on peer collaboration to improve student learning. Their structure included small (6-15 members) multidisciplinary groups that created customized curricula based on themes in the literature, suggestions from previous participants, and their own personal interests.

The recipe for a successful mid-career faculty development program

Given the ubiquity of the mid-life experience, organizations may want to adapt their policies and resources to provide opportunities for professional growth that align with the developmental stage of these faculty. For example, goal-setting and career

planning can be used to minimize the number of individuals who emerge from a mid-career crisis feeling trapped and defeated. McLean, Cilliers, and van Wyk (2008) proposed several requirements for effective faculty development: initiatives need to be systematically planned, implemented, and evaluated; the outcomes should be realistic and measurable; and programs should be tailored to meet the needs of individuals, departments, and the institution. However, it is not always easy for institutions to put the fundamental pieces together. Administrators may therefore benefit from considering several factors that are likely to influence the effectiveness of their mid-career faculty development programs, including faculty composition, faculty input, institutional endorsement, and clear benefits.

Faculty composition. In addition to providing high-quality, generalizable content, it is also important for faculty development offices to know the particular needs of their audience in order to create programs that address these needs. McLean et al. (2008) incorporated literature from higher education, medicine, and health science to develop a program to meet the unique needs of medical faculty. They emphasized the importance of experiential learning, multidisciplinary projects, and reflection activities, such as peer evaluation, portfolios, and mentoring. The authors also indicated that effective faculty development requires a medical education office run by respected faculty members who can serve as academic role models. Golper and Feldman (2008) presented other strategies for success in mid-career faculty development in academic medicine, such as diversifying funding, greater collaboration, and effective conflict management. In addition, they advocated for the support of both institutional and national

opportunities for professional growth and for providing protected time-off for these endeavors. Although not unique to medical educators, these issues may carry an additional burden in this population due to their competing clinical responsibilities.

Faculty input. Regardless of which specific initiatives are selected, an integral component of faculty development is to include faculty in both the planning and the implementation phases, in order to maximize buy-in. In turn, the curriculum should be selected to meet the interests and needs of the actual participants. Programs must be attractive to both successful and struggling faculty, but will ultimately only be effective for those who are open to change. In addition, faculty members do not want to simply sit and listen to others speak during workshops; therefore, they should be encouraged to actively participate in the learning process by sharing their ideas.

The significance of faculty input was further supported by Romano et al. (2004) who found that, when faculty are given the opportunity to reflect on their teaching through conversations with colleagues, they are more likely to feel recharged than those who participate only passively. They also found that their best recruiters were the faculty who had already completed the program. This suggests that finding enthusiastic, reliable faculty to serve as the original cohort in a mid-career faculty development program can function as the catapult for a sustainable, successful initiative. Lastly, it is important to maintain focus on the individual: each faculty member's professional development plan should be considered a continuous "work in progress" rather than a limited goal with a finite end point (Daley et al., 2008).

Institutional endorsement. Once faculty composition and input have been

considered, then program planners must consider how the institutional environment may impact the faculty's ability to chart their course and improvise when deterrents and apathy arise. Evaluation of Laursen and Rocque's LEAP Program (2009) uncovered an array of systemic needs that are required for a faculty development program to be effective. For instance, there must be a pervasive feeling within the institutional culture that faculty diversity and work-life integration are supported. Participants repeatedly noted that carving out time for family, friendship, spiritual practice, community, exercise, and relaxation can improve one's health and productivity. In addition, Romano et al. (2004) stressed the importance of maintaining an institutional culture that places real value on high-quality pedagogy.

At the departmental level, chairs can institute a variety of efforts to help mid-career faculty align their goals with the mission of the department while maintaining their own productivity. In addition to constructive annual reviews, department chairs can also provide interpersonal support, guidance, space, supplies, mentoring, rewards, networking, bridge funding, and protected time on an as-needed basis (Baldwin et al., 2008; Daley et al., 2008). Although this is an admirable perspective, some may consider it to be naïve and hollow, since there is no universal answer to how a department is supposed to find the personnel, finances, and facilities to accomplish such lofty goals. Furthermore, there may actually be financial disincentives for departments to develop and eventually promote faculty if the promotion is expected to be accompanied by a raise.

Clear benefits. The importance of institutional support extends to the need for clear benefits. Fortunately, there are several internal benefits that arise from faculty

development, including intellectual connections, collaboration, and social support. These

advantages are often noted as the most important outcomes of faculty development

initiatives, since much of the work involved with teaching and research is performed in a

vacuum. Faculty development teams, workshops, and mentoring pairs can counteract

feelings of isolation by providing a network for solving problems, boosting morale, and

sharing ideas (Laursen & Rocque, 2009; Romano et al., 2004).

One must also consider the presence or absence of external motivation provided

by incentives (offered before participation) and rewards (given after successful

completion). Common examples of external motivators include awards, recognition,

grants, stipends, and personalized development plans with the opportunity to consider

new or modified career paths (e.g. faculty internships, sabbaticals, and exchanges) (Kelly,

1990; Romano et al., 2004). These tangible actions indicate to faculty that the institution

believes in their ability to succeed. To that end, institutions should consider offering paid

leave and released time from responsibilities as incentives to motivate faculty to

participate in faculty development and continuing education programs. In short, there

must be an expectation for exemplary teaching and a reward system in place to

acknowledge successful faculty (Romano et al., 2004).

The changing landscape of tenure policies in academic medicine

Mid-career faculty development is a movement that is gaining ground at a variety

of institutions across the country. However, the literature discussed below suggests that

nowhere is this discussion more important than on medical campuses, due to the evolving

nature of their tenure policies. The topic of tenure in higher education has been a contentious subject for generations. Although noble in its original intentions, the subject of tenure has initiated heated debate between faculty and administrators. Medical school faculty are increasingly being pulled in multiple directions. They are being asked to enrich student education, to meet the needs of their patients, to develop research agendas and public health initiatives, to secure external funding, and to serve the school and community, all while attempting to improve their work-life balance (Jones & Sanderson, 1994). These competing and overwhelming responsibilities are causing many faculty to become increasingly discouraged and fatalistic (Baldwin & Chang, 2006). Meanwhile, medical school administrators are searching for policy solutions that will enhance the viability of their programs without jeopardizing their educational mission. Consequently, creating a promotion and tenure system that rewards and supports diverse faculty contributions has become an onerous challenge for academic medicine centers that have not embraced alternative forms of scholarship.

The equation used by institutions to decide whether a faculty member should be awarded tenure is often comprised of three tenets: research, teaching, and service (and typically in that order). Traditionally, tenure guidelines have stated that new faculty appointees have a seven year probationary period in which to establish their professional careers and meet certain benchmarks which display evidence of and potential for excellence. Tenure often coincides with a promotion from assistant professor to associate professor, after which most faculty consider themselves to be "mid-career." Once tenure is awarded, it can only be terminated in the case of death, voluntary resignation or

retirement, involuntary termination for cause, medical incapacity, financial exigency, or discontinuation of a program or academic unit.

Formal tenure policies in the United States date back to 1913 when the American Association of University Professors (AAUP) was formed under the leadership of Arthur Lovejoy, a philosophy professor at Johns Hopkins University. With the help of John Dewey, Lovejoy assembled 600 professors from nine universities to create "general principles respecting the tenure of the professional office" (AAUP, 1915). Since its conception, tenure has remained an almost universal practice throughout American higher education. It has given faculty the economic security to explore new areas of research, even in controversial and unpredictable subjects (White, 2000). Despite its endurance, there is mounting concern that awarding tenure may backfire on an institution's academic mission. Opponents of tenure claim that it depletes resources, elicits unnecessary competition among junior faculty, and causes tenured faculty to become detached and/or unproductive. Tenure also has been blamed for contributing to both racial and gender discrimination and educational sloth (Halperin, 1995).

Comparatively, the history of tenure in academic medicine is much shorter, but just as thorny. Up until World War II, the majority of medical school faculty had part-time clinical commitments elsewhere that provided the bulk of their income. Therefore, tenure didn't emerge for medical faculty until they became a more integral part of the institutional mission and, since that time, tenure policies have remained in flux. In 1991, an influential article published by Bickel with the Association of American Medical Colleges (AAMC) highlighted the abundance of tenure policy changes that were

occurring at U.S. medical schools. The authors surveyed and interviewed administrators

from 90% of US medical schools, and results indicated that 78% of these schools were

redefining their tenure track promotion criteria. In addition, 65% were redefining their

non-tenure track promotion criteria, 64% were changing the documentation process for

awarding tenure, and 50% were developing a new non-tenure track (Bickel, 1991).

Dozens of articles have followed, bringing tenure to a particular focus for this subsection

of higher education. However, despite the increased press and professional debate, the

total number of medical schools offering tenure has changed very little over the past 30

years. A 2008 survey found that 94% of accredited medical schools offer tenure to their

basic science faculty and 88% offer tenure to their clinical faculty (Bunton & Corrice,

2011).

   Economic context. In order to understand current promotion and tenure policies

in medical schools, one must also appreciate their economic complexity. Due to

competing forces between the healthcare industry and the university culture, academic

medical centers are expected to accomplish the trifecta of high-quality patient care,

rigorous academic programs, and advancement of research and technology. However, the

turn of the century brought about increasing costs and financial barriers that have caused

tensions to escalate between medical schools and their partnering hospitals, parent

universities, and professional organizations (Jones & Gold, 2001). As a result, medical

schools have become a uniquely vulnerable piece of the higher education pie.

   Historically, income for medical school faculty has come from three sources: 1)

the institution (e.g. tuition, endowments, and/or state appropriations), 2) grants and

contracts, and 3) clinical income (i.e. fees generated from patient care). For many years, clinical income was the only source that enjoyed growth beyond inflation (Petersdorf, 1984). However, in the 1990s, medical schools began experiencing tangible losses in clinical income following an era of consistent growth (Tierney, 1999; Jones & Gold, 2001), and in 2013, 24% of public medical schools and 31% of private medical schools were losing money (AAMC, 2014). Not only are medical schools dealing with a sharp drop in clinical income, they are also experiencing a significant decline in federal funding and research grants, which accounted for 55% of medical school income in 1966 but only 17% in 2013 (AAMC, 2014). Unfortunately, the reduction in research dollars and increased competition for government-sponsored grants are economic barriers that are expected to continue. Undoubtedly, coping with financial constraints is one of the biggest arguments against tenure in medical schools, in that the practice of guaranteeing salaries significantly limits an institution's ability to weather economic hardship (Bunton & Mallon, 2007).

Changing demographics. Over the past century, the roles and demographics of faculty in academic medicine have diversified each decade. Today, the lion's share of responsibilities for medical school faculty lies in patient care and clinical teaching (i.e. supervising medical students and residents in clinical settings), which requires faculty to shift more of their focus away from scholarly endeavors (Bunton & Mallon, 2007). As a result, medical schools experienced a 57% increase in the size of their clinical faculty between 1988 and 1998 (Marks, 2000), which has run parallel to medical schools' increased reliance on clinical revenue as a funding stream. Although the last few decades

have seen an increasing number of clinical faculty, they have also marked a decline in the proportion of tenured faculty on medical campuses, dropping from 60% in 1984 to 33% in 2008 (Mann, 2010). Concurrently, the percentage of faculty who are female and/or from dual-career households is increasing (Bunton & Corrice, 2011), as is the percentage who state that work-life balance is more important than compensation and career advancement (AAMC, 2009). As expected, these factors are particularly important for mid-career faculty. This shifting current has led to different expectations, preferences, and roles among today's medical school faculty (Bunton & Mallon, 2007).

Tenure policies must also account for the changing demographics of our country. Due to an expanding and aging population, the US is expected to experience a significant physician shortage over the next decade. The AAMC predicts that by 2020 there will be a deficit of over 90,000 physicians, a number that is expected to top 130,000 by 2025. In response, there is a plea to medical schools to increase their enrollment by 30% (AAMC, 2006). Therefore, medical school faculty retention is of the utmost importance if we are to adequately train an increasing number of medical students.

The importance of retaining and revitalizing medical faculty stretches beyond physicians and touches all members of the healthcare team, as interdisciplinary collaboration has been shown to have a direct impact on healthcare outcomes. "Research shows that effective interprofessional education results in effective collaborative practice, and effective collaborative practice results in better health outcomes; improved efficiency, safety, and quality of healthcare; greater patient satisfaction; increased job satisfaction, and strengthened health systems" (Kalb & O'Conner-Von, 2012, p. 39).

Therefore, the time is now to adopt a change cycle in healthcare education that reflects diversity of thought and experience in both student education and faculty development.

It is also imperative to acknowledge the next generation of students entering the health professions when addressing tenure and promotion policies. Not only are these students more socially-conscious, demanding work-life integration, but they also expect support for interdisciplinary collaboration and team science. Evidence shows that students who take part in interprofessional educational programs which focus on conflict resolution, effective communication, and shared decision-making are more likely to collaborate across disciplines in future work settings and to provide safe and high-quality healthcare (Kalb & O'Conner-Von, 2012). Moreover, today's students are looking specifically for mentoring opportunities and leadership training (Pelletier, 2010). Therefore, medical schools would be wise to account for the hopes and aspirations of this new cadre of students, some of whom will become future faculty as well.

Given the changing expectations of today's students and the economic uncertainties of the future, it will be advantageous for schools to create innovative faculty development programs to maintain vitality and interdisciplinary collaboration. Fostering a culture of enduring engagement will be particularly important for mid-career faculty who are at greatest risk for burnout and isolation. As tenure policies continue to evolve, these initiatives may be the glue that holds an institution together.

Theoretical frameworks of faculty development

While ACIT emerged from an understanding of mid-career faculty and academic medicine, this dissertation was based on the theoretical frameworks and evaluation designs of faculty development. The foundation of faculty development rests on a framework which applies John Dewey and Kurt Lewin's experiential learning theory to higher education (Kolb & Kolb, 2005). Dewey and Lewin drew from the concept of learning space and how it relates to the intersection of student learning styles and the institutional learning environment. Their work addressed experiential learning and its application to curriculum development, long-term outcome assessment, student development, and faculty development. As such, experiential learning often provides the foundation for faculty development programs that take the form of seminars or workshops.

A second influential framework came from Kirkpatrick, who created a model for measuring the effectiveness of training outcomes using four steps or categories. Step 1, termed *reactions,* was defined as trainees' attitudes toward the training program. Step 2, *learning,* was defined as techniques, principles, and facts understood and absorbed by the trainees. Step 3, *behavior,* was defined as applying the learned material on the job. Step 4, *results,* was defined as the end goals or desired results. The Kirkpatrick model, originally published in 1959 and revised in 1998, provided an accessible vocabulary and taxonomy which was quickly adopted throughout social science, particularly industrial/organizational psychology. Over the past fifty years, the Kirkpatrick model has been modified by many researchers in an attempt to correct for assumptions and

overgeneralizations (Alliger & Janak, 1989).

Another important theoretical framework relating to faculty development comes from Knowles' Adult Learning Theory (1980). This theory includes five principles that can be applied to faculty development in medical schools: 1) faculty should know why they are learning something, 2) self-direction is integral to faculty, 3) faculty come with expansive experiences that frame their learning, 4) faculty are motivated to learn something after they are made aware of their lack of knowledge, and 5) faculty development programs benefit from being task-oriented with immediate applicability (Carroll, 1993). This theory was also referenced by Sarikaya, Kalaca, Yeğen, and Cali in 2010 when they stated that high quality faculty development programs tend to focus on experiential learning, nurturing peer and colleague relationships, provision of feedback, diverse pedagogical methods, and interventions designed according to adult learning theory.

There have also been a few studies focused on the salient qualities of effective professional development, many of which are based on the theories above. For example, Garet, Porter, Desimone, Birman, and Yoon (2001) surveyed and interviewed 1027 teachers to identify the core features of professional development activities that are most likely to have a positive impact on teachers' self-reported increases in knowledge, skills, and behaviors. The authors found that focusing on content knowledge, opportunities for active learning, and coherence with other learning activities led to the most significant effects. Similarly, in 2003, Guskey published a meta-analysis of the literature that examined 13 different lists of the characteristics of effective professional development.

He claimed that much of the research is contradictory and inconsistent, indicating that

professional development is particularly difficult to measure. Kirkpatrick, Alliger, and

Garet each utilized a combination of pre-test/post-test surveys, structured interviews,

focus groups, and participant questionnaires to collect both quantitative and qualitative

data on training initiatives in order to triangulate results. Therefore, it appears that a

mixed method design is most appropriate when attempting to evaluate the complex

constructs related to the effectiveness of a professional development program.

Evaluation designs utilized in faculty development

In order for the ACIT program evaluation to be fully informed and grounded in

precedent, it was important to examine the literature for evaluation designs that have been

effectively utilized in faculty development contexts. The conclusions of a paper by

Beckerle et al. in 2011 provide an insightful summary of how to judge the quality of

faculty development programs in academic medicine. The authors performed a survey of

nearly 2000 US medical school faculty, and their results identified high levels of anxiety,

depression, and job dissatisfaction. They asserted that academic medical centers spend

the vast majority of their time focusing on research, teaching, and patient care, with very

little energy reserved for professional development. Therefore, they composed six

principles to guide faculty development programs in modern medical schools, including

1) value the contributions of individuals and teams, 2) nurture the young, 3) integrate the

personal and professional, 4) create inclusive communities, 5) develop enlightened

leadership, and 6) emphasize service. In reference to principle 1, the authors noted that

members of a team reported higher levels of productivity and professional engagement

compared to those working alone. This, in particular, speaks to the explicit link between

collaboration, engagement, and vitality.

It is important to remember that these faculty development programs come in

many forms, but they usually share a similar goal: "to support medical educators in

adapting to changing missions of teaching and to enhance the efficiency and performance

of their teaching skills while improving work satisfaction and teaching confidence"

(Sarikaya et al., 2010, p. 35). In addition, the majority of faculty development programs

include four developmental components (instructional, professional, organizational, and

leadership) that are typically evaluated using pre-test/post-test surveys or retrospective

self-assessments. For example, Sarikaya et al. surveyed alumni of a faculty development

program about their use of new skills, concepts, knowledge, and teaching activities

before and (1 year) after participation in the program. Similarly, the University of

Minnesota's Center for Teaching and Learning Services (discussed previously) is

evaluated by participants biannually, and feedback is incorporated on a rolling basis.

They also conducted a formal evaluation that included surveys and interview questions

focused on personal attitudes, teaching knowledge, and teaching behaviors (Romano et

al., 2004).

However, in order for a faculty development program to receive continued

support, there must be measurable benefits that are supported by evidence beyond

participant reflections. Unfortunately, measuring "outcomes" for individual faculty

members, the students, and the institution can be esoteric targets. In 2003, researchers

from the University of Michigan Medical School reported on an evaluation performed to assess outcomes of their Medical Education Scholars Program. The outcomes they measured were promotions, educational research and development, curriculum leadership, and educational scholarship. The authors indicated that this is an ongoing summative evaluation consisting of two parts: 1) the construction of a "program CV" that documents the accomplishments of the program's alumni in aggregate and 2) a set of follow-up interviews with each alumnus approximately one year after completion of the program. Regarding their selection of outcomes, the authors acknowledged that these measures may not adequately capture the effects of the program on clinical faculty; however, they assert that these outcomes are often particularly important to the decision-makers within an institution (Gruppen, Frohna, Anderson, & Lowe, 2003).

A different approach comes from Armstrong and Barsion (2006) who reported on a faculty development program evaluation that used an outcomes-logic model. This model identifies the inputs, activities, outputs, and outcomes of the program and is designed to follow the path of a program from creation to implementation to participant outcomes. The authors began by defining the four components (I, A, O, and O), and then they created measurable criteria for judging whether each program outcome had been achieved. They also agreed upon a baseline statistic for each outcome, above which they would claim that the outcome had been achieved. The data came from interviews with program participants shortly after completing the program and follow-up participant surveys three years later. As such, they were seeking to document both immediate and intermediate outcomes. This model, or at least its execution, has some inherent

drawbacks. For example, the authors determined their own baseline levels for effectiveness and the results were self-reported, without accounting for any other professional development that occurred in the three year interval.

Unfortunately, very few studies have documented the true effectiveness of faculty development programs on altering the knowledge, skills, and attitudes of faculty. However, in 2006, Steinert et al. set out to answer that question by reviewing two decades worth of medical education literature on studies that included outcome data beyond participant satisfaction, coming from a total of 53 articles. All of the reports focused on teaching improvement, with the majority being targeted at practicing clinicians. The studies included 47 quasi-experimental designs, of which 31 incorporated a pre-test/post-test. Across the board, participants reported positive changes in attitude, increased knowledge, and a gain in teaching skills. Notably, changes in teaching behavior were consistently reported by both participants and their students. They concluded that these positive effects are promising but that future studies should evaluate whether changes are maintained over time. In addition, student learning and aptitude have only rarely been examined and external evaluations (i.e. from peers, patients, or direct reports) seem to be missing entirely. These gaps mark a clear need for research in this domain.

The importance of faculty development programs documenting measurable value-added outcomes was also voiced by Hewson and Copeland in 1999. They argued that this has become increasingly critical given the economic context of declining discretionary spending. Unfortunately, the majority of published evaluations are descriptive in nature, primarily reporting on participants' self-assessments of changes in teaching strategies'

effectiveness. Because these self-reports have been shown to correlate poorly with teachers' actual practices, the authors urge faculty development programs to gather objective, performance-based data to measure their effect. In turn, this group sought to measure such data on their "tailored teaching" program by comparing the outcomes of participants to the outcomes of a faculty control group. To do so, they analyzed data from a teaching effectiveness instrument that was being used to assess teaching throughout the medical school.

In 1992, Hitchcock, Stritter, and Bland highlighted the benefit of using a combination of quantitative and qualitative approaches to capture a more accurate and representative view of a program's effectiveness. They encouraged faculty development offices to focus on skill acquisition beyond mere teaching (e.g. research, leadership, collaboration). They also recommended developing a mission for each program, consulting experts, and involving faculty in the design and evaluation. They claimed that "faculty development represents an investment in human capital" (p. 295) that enables individual faculty members to maintain and improve their vitality. Threats to vitality include outdated curricula, changing student demographics, lack of professional opportunities, decline in earning potential, and sub-par work environments. Unfortunately, much of the literature on faculty vitality focuses on theoretical and philosophical inferences, rather than measurable intervention outcomes, which marks another gap in the literature that needs to be addressed (Hitchcock et al., 1992).

CHAPTER THREE: The Program

Program Overview

The Academy for Collaborative Innovation & Transformation (ACIT) is a mid-career faculty development program, specifically for late assistant (7+ years at rank) and associate professors with demonstrated commitment to the institution and a track record of accomplishment. The goals of the program are to allow participants to engage in interdisciplinary collaboration, self-reflection, mentoring networks, and the development of strategic leadership skills through experiential and project-based learning. The program is in its infancy, running its pilot year from February to November 2014. To enable the participants to fully engage, all clinical faculty were given 10% protected time during the program.

Core Competencies

The Mid-Career Faculty Development (MCFD) Task Force established a list of 16 core competencies that were advanced as essential for the ongoing success of a mid-career faculty member. The development and strengthening of these competencies were the foundation of ACIT's interactive, case-based curriculum.

1. Appraisal of strengths and areas for growth
2. Understanding disruptive innovation
3. Change leadership
4. Managing staff and team-building
5. Communicating effectively
6. Professional resiliency
7. Strategic partnerships and alliances
8. Educating the next generation
9. The value proposition: improving quality & efficiency
10. Formulating individual development plan
11. Developing organizational savvy
12. Scholarship and dissemination
13. Leveraging diversity and inclusion
14. Achieving work/life integration
15. Creating cultures of innovation
16. Developing financial acumen

Program Design

      The initial ACIT program consisted of six two-day learning modules that took place from 8:00am-5:00/5:30pm on Thursdays and Fridays over the course of a ten-month period. These intensive and interactive modules were held in conference rooms on the BU Charles River Campus, intentionally removed from the classrooms, laboratories and offices of the BU Medical Campus faculty. Each module focused on a particular theme and was part of the broader arc of the program that sought to achieve the learning goals by incorporating curricular content, as well as peer and senior mentoring, to facilitate the enhancement of the core competencies discussed above. The modules were facilitated by the core ACIT faculty, while the facilitators of the individual sessions were selected based on their expertise in the content areas listed below. The session facilitators included BU faculty members from the Schools of Medicine, Management, Communications, and Public Health, as well as BU Human Resources, BU Faculty & Staff Assistance Office, and institutional leaders throughout BUMC and neighboring peer institutions. Interactive pedagogical tools were used to encourage participants to share their own knowledge and experience and play a major role in their own learning and that of their peers. It is also worth noting that this program was *not* designed to specifically address promotion, leadership, or retention.

Table 1: Curricular Content

Module 1: Envisioning Your Role in Tomorrow's Health Care (Feb 27-28)	
DAY 1	Defining the Strategic Agenda
	Challenges and Opportunities in Health Sciences
	Defining Your Personal Roadmap
	Career Development Planning
DAY 2	Capstone Project Introduction
	Capstone Project Planning & Management

Module 2: Meeting the Needs of Stakeholders (April 3-4)	
DAY 1	Stakeholder Engagement: Who, Why, and How
	Meeting the Needs of Stakeholders
	The Value Proposition
DAY 2	Transformative and Transactional Leadership
	The Financial Perspective
	Strategic Planning

Module 3: Working Across Boundaries: Teamwork, Communication & Leadership (May 29-30)	
DAY 1	Communicating Effectively
	The Entrepreneurial Mindset
	Building Collaborative Teams
DAY 2	Mentoring Networks
	Strategic Partnerships & Alliances
	Negotiation & Conflict Resolution
	Difficult Conversations

Module 4: Working Efficiently and Effectively (June 26-27)	
DAY 1	Managing Process
	Managing Projects
DAY 2	The Costs of Poor Quality
	Working Efficiently and Effectively

Module 5: Creating New Value (September 18-19)	
DAY 1	Creating New Capabilities
	Organizational Savvy
DAY 2	Leveraging Diversity & Inclusion
	Disruptive Innovation

Module 6: Envisioning the Future – And Getting to It (November 20-21)	
DAY 1	Change Leadership
	Managing Under Uncertainty
	Project Presentations
DAY 2	Creating Cultures of Innovation
	Continuing on the Transformative Journey

Also embedded in each module was a "Conversation Café," which was a 90-minute session in the afternoon of the first day of the module for participants to engage with institutional leaders and other inspirational figures in an informal context about big picture issues (e.g. the future of academic medical centers, visionary leadership, improving the quality of healthcare, and strategic collaborations with the community). The Conversation Cafes were an opportunity for mid-career faculty to benefit from the experience and vision of these great leaders and for the leaders to engage with faculty members they may not otherwise interact with, thus creating value and potential opportunities for mentoring and future collaborations on both sides.

ACIT was designed to promote peer learning and social connectedness among the participants in various ways. Much of the learning occurred naturally as participants interacted during the sessions and in conversations over lunch and other breaks. In addition, a more formal structure of peer learning was offered through "learning communities." Each learning community, composed of four to five participants, met at the end of each day to reflect on the curricular content of the module and commit to specific ways in which they would implement new knowledge and skills in their work. By publicly committing to goals, the group held each person accountable and provided ongoing support to help meet those goals. The learning communities served as a network of support for participants, where they could speak openly about challenges they were facing and brainstorm approaches to overcoming them.

In addition to the two-day modules, ACIT also included multidisciplinary group projects based on institutional needs identified by BUMC leadership, department chairs,

and program participants. From the complete list of submitted project ideas, a short list of seven projects was created with the guidance of various BUMC leaders to ensure they were realistic and in line with institutional priorities and that there were sufficient resources to bring them to fruition in 2014. All ACIT participants were asked to rank their top four project choices prior to the start of the program. Based on this input, ACIT staff determined the four projects that were of greatest interest to the cohort overall. During the first module, participants self-selected into project teams through a facilitated process that ensured the teams were diverse and made up of participants who have an interest in the topic. Project teams consisted of four ACIT participants who collaboratively developed a project charter to establish goals, roles, and a timeline for completion. In addition, each team determined their milestones of success, held each other accountable to progress on the project, and provided ongoing peer mentoring and support to one another. As such, the capstone projects were seen as a venue for applying the learning from the curriculum, enhancing collaboration skills and peer mentoring, and meeting institutional needs, ideally strengthening connectivity to colleagues and to BUMC.

Table 2: Capstone Team Projects

Project Title	Project Sponsors	Project Context	Desired Outcome	Team Members' Affiliations
Project 1: Compliance with ACGME mandates for Clinical Learning Environment Review (**CLER**)	• BMC Quality and Patient Safety Administrator • BMC Senior Vice-President of Medical Affairs / Chief Medical Officer	• In July of 2014 the way graduate medical education is evaluated and credentialed will undergo a national shift. More important than the traditional residency site visits will be the so-called CLER visit in which the Accreditation Council for Graduate Medical Education (ACGME) evaluates the overall learning environment that the hospital provides the residents. Despite having received a number of violations across the institution, to date there have not been any institution-wide solutions to comply with accreditors' mandates.	• Formulate an institution-wide plan to improve the hospital learning environment for residents, implement it and evaluate the new measures, in collaboration with CLER Evaluation Committee.	• Clinician Educator (Otolaryngology) • Clinician (Medicine/Pulmonary) • Clinician Investigator and Educator (Medicine/Pulmonary) • Clinician Educator (Surgery)
Project 2: Recruitment and talent management of under-represented minority (**URM**) faculty	• BMC Vice President of Human Resources • BUSM Associate Dean of Diversity and Multicultural Affairs	• The case for diverse and inclusive workforces has been presented and justified for more than two decades, yet the diversity of the BUMC faculty, particularly with regard to race/ethnicity, remains poor. This is even more problematic in a hospital that serves a very diverse community. • Models have been developed for best practices in the recruitment and talent management of URM faculty but have not been applied at BUMC. • This project team will determine what the best practices and models are that can be applied to the BUMC context, and collaborate with institutional leaders to create structures to enhance faculty diversity and the experience of those faculty members at BUMC.	• Improve recruitment, retention, advancement, and promotion of URM faculty at BUMC.	• Population Scientist (Epidemiology) • Clinician Investigator and Educator (Emergency Medicine) • Clinician Educator (Family Medicine) • Clinician Investigator (Obstetrics and Gynecology)

Project Title	Project Sponsors	Project Context	Desired Outcome	Team Members' Affiliations
Project 3: Comparative effectiveness of different testing strategies for hepatitis C Virus (HCV)	• BMC Chief Operating Officer	• HCV is the most common chronic blood infection in the US, and the leading cause of death related to liver disease, disproportionately affecting underserved populations. Treatment is effective, but cannot be offered if people are unaware of their diagnosis; studies indicate that 45%-85% of people infected are undiagnosed. Primary care and emergency departments may be the best place to implement testing, but strategies the best strategies for implementation in these busy settings are unknown. • Data from BMC show that only a very small fraction of patients known to be infected are treated (much less identified), despite good reason to believe the prevalence is high among patients. • Project team members will conduct a multidisciplinary mixed methods study, taking a system level view, to measure and compare the effectiveness of different testing strategies in different settings.	• Determine most effective testing strategy for diagnosing hepatitis C, to improve patient quality of life and reduce the high cost associated with the sequelae of hepatitis C at BMC and in other safety net hospitals.	• Population Scientist (Health Policy & Management) • Population Scientist (Epidemiology) • Clinician Investigator (Medicine/General Internal Medicine) • Clinician Educator (Pathology/Medicine)
Project 4: Increasing physician satisfaction	• BMC Senior Vice President for Quality, Safety, and Technology • BMC Director, Organizational Effectiveness	• The employee engagement survey over the past three years has shown low physician satisfaction and engagement, which has repercussions for faculty retention and patient care. • In response to this challenge, identify drivers of physician satisfaction and develop actionable steps to make progress and address the root causes of dissatisfaction • Project could be piloted in General Internal Medicine/Primary Care with intention of developing a system that can be replicated in other departments.	• Increase physician satisfaction and engagement, as measured by BMC Engagement Survey, enhancing morale, recruitment and retention.	• Clinician Educator (Medicine/General Internal Medicine) • Clinician Educator (Neurology) • Clinician Educator (Pediatrics) • Clinician Investigator/ Educator (Medicine/ Endocrinology)

Learning goals for program participants

The curricular content was designed to enable participants to accomplish the following four goals:

(1) *Self-reflect and pursue an individual development plan:* By mid-career, most faculty members are completely entrenched in their daily work and don't often have opportunities to pause and reflect on where they are in their careers and where they would like to go. Furthermore, opportunities for honest feedback from colleagues and an appraisal of strengths and challenges are rare, if they happen at all. ACIT begins and ends with a 360-degree evaluation and the development of an individual development plan, providing an opportunity for deliberate self-reflection and consideration of meaningful career development goals.

(2) *Connect longitudinally to one's peer cohort and to the larger organization*: As feelings of isolation are pervasive among mid-career faculty members at BUMC, ACIT strives to build a cohort of faculty from across the campus who feel connected, supported, and committed to one another, as well as to the institution. The cohort helps foster a sense of engagement and improved morale, which ultimately impacts participants' colleagues, students, patients, and the broader BUMC community.

(3) *Collaborate effectively with colleagues across disciplines, sectors, and roles*: In the current climate of decreasing research funding and a growing emphasis on interdisciplinary team science, it is essential for BUMC faculty to have the skills to communicate and collaborate effectively with their colleagues in different departments, institutions, in academia and the private sector, and from diverse ethnic and cultural

backgrounds. ACIT addresses this need through various modules and team projects.

(4) *Enhance ability to implement transformative work*: In the rapidly changing field of health sciences, the ability to learn and innovate over time to do transformative work as clinicians, educators and researchers is essential for success. The ACIT curriculum includes various modules that develop these skill sets and strategies for change leadership.

CHAPTER FOUR: Methodology

The start-up costs for ACIT were provided by the American Council on Education (ACE) / Sloan Foundation and the BUSM Department of Medicine, Office of Faculty Development & Diversity (OFDD). However, for the program to continue after the first year, additional funding and support will be required from the BUMC leadership (i.e. Provosts, Deans, etc.). Therefore, a formative, yet partially-summative evaluation was performed for the dual purposes of providing data to BUMC leadership to assist with funding decisions, and providing information to ACIT staff on the effectiveness of the program and how it can be improved to better meet the needs of mid-career faculty and BUMC as an institution.

To accomplish these goals, the evaluation team (comprised of MaryAnn Campion, MS, Assistant Professor of Obstetrics and Gynecology at BUSM and doctoral candidate in the BU School of Education, and Robina M. Bhasin, EdM, Director of the OFDD) used an objectives-based approach in combination with a management-oriented and participant-oriented approach to establish a plan for evaluation. The objectives focused on the following aspects of the program: (1) ACIT's ability to achieve its stated learning goals, (2) ACIT's curricular content, (3) effectiveness of pedagogies used, (4) impact of ACIT on the participants' work, and (5) impact of ACIT on the institution. This study was approved by the Boston University Medical Campus Institutional Review Board (IRB Number H-32681).

Setting

  This program evaluation took place on the Boston University Medical Campus (BUMC), which is comprised of the BU School of Medicine (BUSM), BU School of Public Health (BUSPH), and the Goldman School of Dental Medicine (GSDM). BUSM is a private, urban medical school with Boston Medical Center serving as its primary teaching hospital. Boston Medical Center is the largest safety net hospital in New England.

Study Participants

  Treatment group: A competitive application process took place in October 2013 to select 16 total participants for ACIT. The admissions committee was comprised of institutional leaders from BUSM, BUSPH, the Faculty Practice Foundation (FPF), and BMC. The committee used a rubric to assess applicants' track records of accomplishment, demonstrated commitment to the institution, interest in collaboration across disciplines, and diversity relative to the BUMC faculty population. The applicants selected for the first ACIT cohort included 13 clinical faculty from 10 departments at BUSM and three faculty members from three different departments at BUSPH.

  Reference group: Twenty five faculty members were identified by participants' department chairs as "equivalents" to the participants based on their rank, department/section, track, and number of years at rank. These individuals were recruited to serve as a reference group. They were asked to complete the Knowledge, Skills, and

Attitudes Survey and the Connectivity Scale, and they were given the option to opt in or out of the Fitbit (17 of 25 opted in). These instruments are described in detail below.

In addition to the participants in the treatment and reference groups, data were also collected from four individuals representing the BUMC leadership, nine BUMC department chairs and section chiefs, and five ACIT staff members. Due to a change in leadership during the time of the ACIT program, input was not received from anyone in a decanal position at BUSPH.

Table 3: Descriptors that were matched between ACIT Participants and Referents

ID	Rank	School, Department / Section	Track	# of Years at Rank
1	Assistant Professor	BUSM, Medicine / General Internal Medicine	Clinician Educator	21 years
2	Assistant Professor	BUSPH, Epidemiology	Population Scientist	9 years
3	Associate Professor	BUSPH, Health Policy and Management; BUSM, Medicine / Infectious Disease	Population Scientist	8 years
4	Associate Professor	BUSPH, Epidemiology	Population Scientist	2 years
5	Associate Professor	BUSM, Medicine / Neurology	Clinician Educator	3 years
6	Associate Professor	BUSM, Surgery / Otolaryngology	Clinician Educator	8 years
7	Assistant Professor	BUSM, Surgery	Clinician Educator	12 years
8	Assistant Professor	BUSM, Medicine / Pulmonary	Clinician Investigator / Educator	10 years
9	Associate Professor	BUSM, Emergency Medicine	Clinician Investigator / Educator	2 years
10	Associate Professor	BUSM, Medicine / General Internal Medicine / BUSPH	Clinician Investigator	4 years
11	Assistant Professor	BUSM, Pediatrics	Clinician Educator	11 years
12	Assistant Professor	BUSM, Obstetrics and Gynecology	Clinician Investigator	6 years
13	Associate Professor	BUSM, Pathology and Laboratory Medicine; Medicine / Hematology	Clinician Educator	6 years
14	Associate Professor	BUSM, Medicine / Endocrinology	Clinician Investigator / Educator	7 years
15	Assistant Professor	BUSM, Medicine / Pulmonary and Critical Care	Clinician	5 years
16	Assistant Professor	BUSM, Family Medicine / BUSPH, Community Health Sciences	Clinician Educator	7 years

Table 4: Other ACIT Participant Demographics

Sex

Men 37%

Women 63%

Terminal Degree

DSc 13%

PhD 6%

MD 81%

Race/Ethnicity

African American 19%

Not Specified 37%

Caucasian 38%

Asian/Latino 6%

ACIT Participants' Professional Experience

Categories (bar chart): Years Since Terminal Degree, Years at BU, Years at Rank

Legend: 1-5y, 6-10y, 11-15y, 16-20y, 21-25y, 26-30y
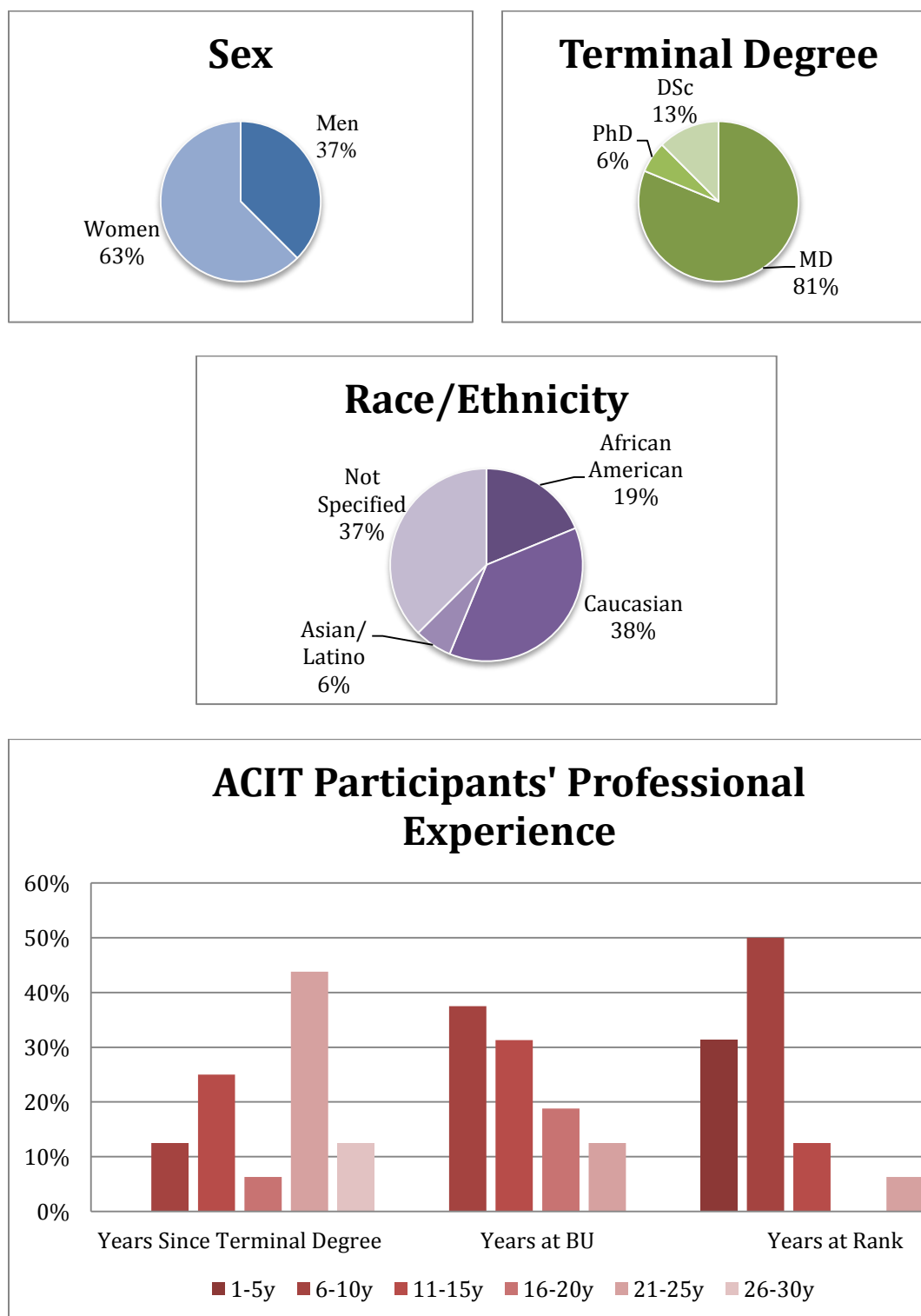
Study Design

While most of the program evaluations discussed in Chapter Two focused on only one or two perspectives, this multi-dimensional program evaluation sought to incorporate the viewpoint of all stakeholders by utilizing a quasi-experimental design and diverse methodologies to assess the impact of ACIT on faculty and institutional vitality. Since vitality is a complex construct, multiple instruments were required to capture the appropriate data for the research question posed. However, since each instrument was designed to measure different variables, the level of redundancy was minimal.

Figure 2. Evaluation Goals and Instruments
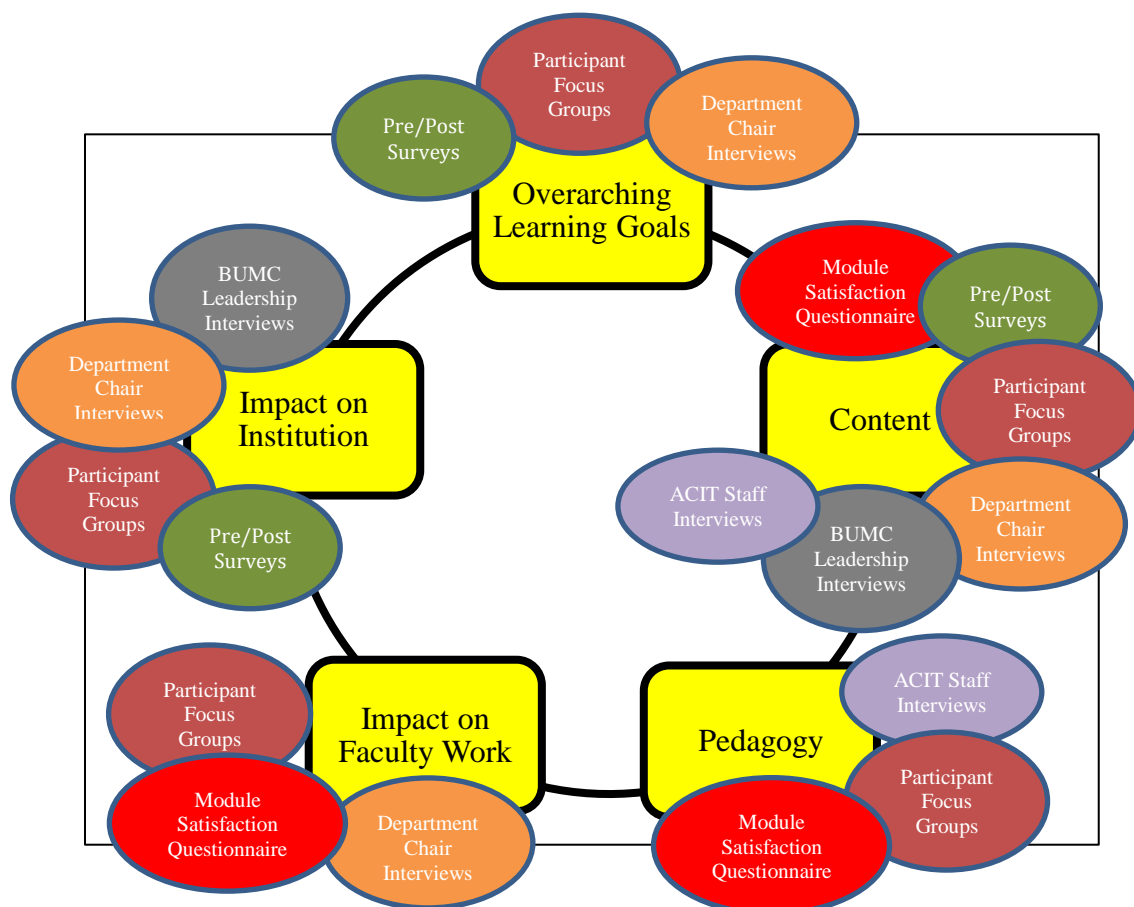
When possible, pre-existing instruments and/or questions were selected in an attempt to increase validity. However, because the aim of this evaluation was to assess opinions, attitudes, and behaviors specific to the ACIT program, the creation of several original instruments was required. Each newly created instrument was initially piloted with members of the BUMC Mid-Career Faculty Development Task Force, so that multiple perspectives could be incorporated into the final product. With the exception of the treatment and reference groups, no other stakeholders were asked to engage with more than one instrument. Given the treatment group's inherent investment in the program, it was anticipated that they would not object to providing feedback via multiple avenues; however, as conveyed through the consent form, they were given the option to opt out of the study at any time.

The ACIT study design was selected such that 1) triangulation would enhance the validity, fullness, and understanding of the results, should data from multiple measures be complementary, and 2) stakeholders would be assured that a complete and balanced picture had emerged, especially if conflicting results were to arise. See Appendix B for the complete ACIT Evaluation Timeline. For a breakdown of how each evaluation goal was measured, please see the Evaluation Goals and Instruments Grid in Appendix C.

Data Sources and Collection Procedures

Please see Appendix D for the complete set of the instruments described below.

1**. Knowledge, Skills, and Attitudes Survey** (Jan 2014 and Dec 2014): This pre-test/post-test survey was designed to assess (1) faculty perceptions of their competence in

the topic areas covered by the six ACIT modules and the skills targeted through the group

projects, and (2) faculty perceptions of support by BUMC. The 32 items include 21 skills

(Section 1), 4 opinions (Section 2), and 7 behaviors (Section 3). The survey was adapted

from Stanford's Pre/Post Leadership Program Survey, which has been used through

several iterations of their leadership development program. Questions were modified only

to reflect the BUMC setting. At this time, there have been no formal publications

addressing the reliability and/or validity of this instrument. The pre-intervention survey

established a baseline to assess between-group and within-group changes upon program

completion. The surveys were administered through Qualtrics software, Version 2.121s

(1.329, 1.584, 0.073, 0.112, 0.027) of the Qualtrics Research Suite. Copyright © 2015

Qualtrics.

2. **Connectivity Scale** (Jan 2014 and Dec 2014): The *Sense of Community Index 2* (SCI-2), the most frequently used quantitative measure of sense of community in the

social sciences, uses perceptions of four elements to measure community: membership,

influence, meeting needs, and shared emotional connections. The SCI-2 is a 25-item

instrument, modified from the original Sense of Community Index, in which a higher

total score reflects a greater sense of community. Each of the four SCI-2 sub-scales

(reinforcement of needs, membership, influence, and shared emotional connection) is

comprised of six related questions. For a complete list of the SCI-2 questions and the

scoring instructions for the sub-scales, please see Appendix D. Using a survey of 1800

people, analyses of the SCI-2 indicate strong reliability of both the overall instrument

(coefficient alpha= .94) and the subscales (coefficient alpha scores of .79 to .86) (Chavis,

Lee, and Acosta, 2008). Two additional questions taken from the 2012 Alfred P. Sloan

Faculty Survey were added to provide data that could be compared to the greater BUSM

faculty. We are not aware of any validation studies or technical data related to the 2012

Alfred P. Sloan Faculty Survey. Results from the pre-intervention Connectivity Scale

were used to establish a baseline to assess between-group and within-group changes upon

program completion. This instrument was also administered through Qualtrics.

3. **Daily physical activity measured by Fitbit** (Feb to Nov 2014): Fitbit is a

pedometer worn on the wrist to measure the number of steps taken and stairs climbed

each day. All participants were asked to wear the Fitbit during waking hours throughout

the duration of the program. The Director of the OFDD calculated the daily average

number of steps taken by the participants each month during this time period. In an effort

to assess whether participation in ACIT had an impact on participants' overall well-

being, physical activity levels (as measured by the Fitbit) were hypothesized to be a

proxy or contributor to well-being.

4. **Module satisfaction questionnaires**: At the end of each module, participants

were given a questionnaire designed to capture information about aspects of the module

(e.g., content, pedagogy) that were effective or ineffective. In addition, the questionnaires

asked about intent to apply information from the module in participants' work and

evidence of how they had applied content from past modules in their work thus far.

5. **360-Degree Evaluations** (Jan 2014): As one of the learning goals of ACIT

was to foster self-reflection, the program began with a 360-degree evaluation for each

participant to enable an accurate appraisal of strengths and weaknesses. Through

feedback from supervisors, peers, and direct reports, the assessment provided an analysis

of the person's leadership competencies and identified areas that need to be improved.

The tool used for this evaluation was the Leadership Practices Inventory (LPI), which is a

well-validated instrument that has been used effectively in many disciplines and

demographics. The 30 leadership behaviors that were assessed are divided into five

common practices: modeling the way, inspiring a shared vision, challenging the process,

enabling others to act, and encouraging the heart. Test-retest reliability for the five

leadership practices has been consistently strong, generally with coefficient alpha scores

at or above .90 (Kouzes & Posner, 2002). Since this instrument is integral to the program

itself, its purpose extends beyond the program evaluation. Each participant received three

debriefing sessions conducted by the Director of the OFDD or one of three other

individuals who were specifically trained for this purpose. In each session, the results of

the evaluation were reviewed and the pairs discussed ways in which the results could be

integrated with the content from the ACIT program. Each participant will undergo a

second 360-degree evaluation in June 2015, but those results will not be included in this

dissertation.

     6. **Focus groups with participants** (Dec 2014 and Jan 2015): The participant

focus groups enabled participants to reflect on ACIT in its entirety and provide

meaningful qualitative data on the experience they had as participants in the program,

specifically with regard to their sense of connectivity to each other and the institution and

to the changes they have seen in their own abilities and approaches to their work and

relationships. These results were used to triangulate the quantitative data obtained

through the module satisfaction questionnaires, the Knowledge, Skills, and Attitudes

Surveys, and the Connectivity Scale.

While focus groups often consist of individuals who are unknown to each other,

ACIT participants are colleagues and, in some cases, friends. Although this may have

lessened their willingness to share unpopular opinions, the evaluation team surmised that

the focus group environment provided a compromise between static survey results and

resource-intensive one-on-one interviews. Furthermore, these individuals are accustomed

to working on initiatives together and thus have established precedent for interactive

dialogue and respecting diverse opinions.

The focus groups were conducted and analyzed following the procedures set forth

by Kitzinger (1995) and Rabiee (2004), the latter of which was based on the framework

of Krueger and Casey (2000). A guide of 14 semi-structured focus group questions was

created using Rennekamp and Nall's 2006 instructive report entitled "Using Focus

Groups in Program Development and Evaluation." The focus groups were audio-recorded

(with participant permission), and an assistant was present to observe non-verbal

behaviors. Given the challenges of coordinating 16 busy faculty schedules, four focus

groups were held, each 60 minutes in length, and lunch or snacks were provided. Using

focus groups of 2-5 participants also allowed the evaluator to establish rapport with

participants, thus increasing the richness and authenticity of the data that they may have

been willing to share.

7. **Interviews with department chairs and section chiefs** (Dec 2014): Since the

department chairs were aware of which faculty members participated in ACIT, their

opinions regarding ACIT's effects on faculty and institutional vitality were not blinded. However, the data from department chairs were used solely to support or refute the self-reported data from the participants and to address departmental needs for mid-career faculty development. All BUMC department chairs and section chiefs who had a faculty member participating in ACIT were invited to participate in either a phone or in-person interview, and ultimately 9 individuals chose to participate. The interviews were conducted and analyzed following the procedures set forth by Turner (2010). The interviews were audio-recorded (with participant permission) and ranged in length from 15-60 minutes. A guide of nine semi-structured questions coinciding with the evaluation objects was created and followed.

8. **Input from BUMC leadership** (Oct 2013 to Dec 2014): Input from the BUMC leadership (comprised of the individuals described in Appendix A below) was first solicited in October 2013, at which time they were asked via email "What information would you like to see at the end of the first year that would be helpful in deciding whether to continue and/or expand the program?" Subsequently, in September – December 2014, four one-on-one interviews were utilized in person and by phone to assess their perception of the impact of ACIT and their perspective on mid-career faculty development in general. A guide of four semi-structured questions coinciding with the evaluation objects was created and followed. The interview procedures were the same as those previously described, and the interviews ranged in length from 10-30 minutes.

9. **Interviews with ACIT staff** (Nov and Dec 2014): As the ACIT staff is a major stakeholder group with varying roles and unique perspectives on the program, one-

on-one interviews were utilized to capture formative data to improve how ACIT could be managed in future years. A guide of five semi-structured questions coinciding with the evaluation objects was created. The interview procedures were the same as those previously described, and the interviews ranged in length from 30-45 minutes.

10. **Long-term measurements** (2020): Should ACIT receive additional funding and thus long-term outcomes are warranted, then additional data points will be sought to provide separate, yet complementary, information that can be combined with the data set discussed above. These additional measures include the BMC Employee Engagement Survey, the AAMC Faculty Forward Engagement Survey, patient satisfaction surveys, student/resident evaluations, faculty retention rates, the number of new collaborations (measured through grants and papers) among ACIT alumni, and the number of institutional leaders who are ACIT alumni (with special attention paid to women and under-represented minorities). Therefore, baseline data from 2013 were collected but will not be included in the analyses for this dissertation.

Primary Evaluator

In addition to being a doctoral candidate in the BU School of Education, the primary evaluator of the ACIT program is an assistant professor at BUSM. She was introduced to the prospect of ACIT when she served on the MCFD Task Force. This enabled her to learn about the program from the ground floor and to develop a keen understanding of the purpose, goals, stakeholders, and decision-making process, as well as the history of support for faculty development provided at BUMC. Since serving on

the Task Force, she has had no further involvement with the program's design or delivery. In addition, her formal role at the institution is in no way associated with or influenced by the staff or success of the OFDD, thus minimizing any potential risk of intimidation or indebtedness and maximizing the likelihood of the evaluation's results being analyzed and reported in a balanced format.

The primary evaluator conducted each interview and focus group, paying attention to the focus group composition and any pre-existing tensions that may have existed within the groups, as well as acknowledging her own bias as a faculty member at BUSM. Given her familiarity with the culture and language of the BUSM faculty, she was able to moderate the conversations with discernment and efficiency. By establishing herself as a trusted, yet critical colleague with the ACIT staff, ACIT participants, and BUMC leadership, she created a framework for stimulating open and honest dialogue among various stakeholders. For example, ACIT participants may have been more inclined to share sensitive information with an evaluator, as opposed to the OFDD staff.

In order to ensure security of the data, all of the evaluation documents were maintained by the primary evaluator in an encrypted electronic folder that required two-step verification.

Data Analysis

Quantitative interval data from the Knowledge, Skills, and Attitudes survey, the Connectivity Scale, and the module satisfaction questionnaires were analyzed using descriptive and inferential statistics. The data were downloaded from Qualtrics into an

Excel spreadsheet. The data were then cleaned, scored, and coded (if necessary) before they were uploaded to IBM SPSS Statistics 19 for analysis.

For the Knowledge, Skills, and Attitudes Survey, 16 participants completed the pre-intervention survey and 11 participants completed the post-intervention survey, with 9 participants' pre-post surveys being matched by an alpha-numeric ID. Similarly, 20 referents completed the pre-intervention survey and 15 referents completed the post-intervention, with 11 referents' pre-post surveys being matched by an alpha-numeric ID. For the Connectivity Scale (SCI-2), 16 participants completed the pre-intervention survey and 12 participants completed the post-intervention survey, with 10 participants' pre-post surveys being matched by an alpha-numeric ID. Similarly, 19 referents completed the pre-intervention survey and 15 referents completed the post-intervention survey, with 12 referents' pre-post surveys being matched by an alpha-numeric ID. In all of the analyses below, only data from the participants and referents with matched pre-post surveys were included.

Table 5: Number of Completed Pre-/Post-Intervention Surveys

Instrument	Participants	Referents
Knowledge, Skills, and Attitudes Survey – pre-intervention	16	20
Knowledge, Skills, and Attitudes Survey – post-intervention	11	15
Knowledge, Skills, and Attitudes Survey – pre/post surveys with matching IDs	**9**	**11**
Connectivity Scale – pre-intervention	16	19
Connectivity Scale – post-intervention	12	15
Connectivity Scale – pre/post surveys with matching IDs	**10**	**12**

For both the Knowledge, Skills, and Attitudes Survey and the Connectivity Scale, independent samples t-tests were performed to assess for baseline differences between the ACIT participants and the reference group. At the completion of the program, paired-samples t-tests were performed to assess for changes within each group over the duration of the program, while independent samples t-tests were performed to assess whether there was a significant difference between the changes of each group. For the two categorical questions on the Connectivity Scale that were taken from the 2012 Alfred P. Sloan Faculty Survey, chi-square tests were performed both pre- and post-intervention to compare participants to the reference group and to the general BUSM faculty, whose data had been collected previously as part of the 2012 Alfred P. Sloan Faculty Survey. For each of the analyses discussed above, non-parametric tests (Mann Whitney tests, Wilcoxin signed ranks tests, and Fisher's exact test) were used to confirm results. A two-tailed significance level of $p \leq 0.05$ was used for all tests.

Qualitative data were gathered from the module satisfaction questionnaires, interviews, and focus groups. For each data source, the complete discourse was transcribed by the primary evaluator using QSR International's NVivo 10 qualitative data analysis software, which was also used to assist in coding for themes related to the evaluation's stated objectives. To establish inter-rater reliability, a second rater (the Director of OFDD) coded 25% of the transcripts selected at random. The first author manually coded all responses into a codebook of themes, and the initial data groupings were reviewed by the second author. Any disagreements were discussed until consensus was achieved. Once the full data set of open-ended survey items and interview/focus

group questions was coded, thematic analysis was used to generate inductive hypotheses

using rich, thick narrative.

CHAPTER FIVE: Results

Pre-Intervention Results:

Knowledge, Skills, and Attitudes Survey: Thirty two items were scored on a Likert scale from 1-5, with 1 = novice and 5 = expert for level of ability in Section 1, 1 = strongly agree and 5 = strongly disagree for agreement with statements in Section 2, and 1 = never and 5 = always for behaviors in Section 3. Since the choices in Section 2 were written in the opposite orientation (positive to negative vs. negative to positive) compared to Sections 1 and 3, their scores were adjusted for the tables below by using the equation 5 - x.

Four items were found to have significant differences between the participants' and referents' perceptions of their knowledge, skills, and attitudes <u>prior</u> to the ACIT program. In all cases, the reference group reported higher mean scores compared to the participants.

Table 6: PRE-Intervention Knowledge, Skills, and Attitudes Survey

Item (Level of Ability):	Participants Mean (SD)	Referents Mean (SD)	P-value
1.1: Identify my own strengths and weaknesses	3.78 (0.44)	4.18 (0.40)	.050
1.2: Establish a development plan for my career	3.00 (0.71)	3.27 (0.79)	.43
1.3: Recognize who our stakeholders are and how to meet their needs	2.67 (1.22)	3.27 (1.19)	.28
1.4: Improve both quality and efficiency	3.11 (1.05)	3.45 (0.69)	.42
1.5: Be a leader who is visionary and transformative	2.44 (0.88)	2.64 (1.03)	.66
1.6: Be a leader who is able to fulfill daily obligations and tasks	4.00 (0.71)	3.91 (1.04)	.82
1.7: Understand where, when, and why we spend resources	2.22 (1.20)	3.18 (1.08)	.08
1.8: Communicate effectively with colleagues	3.56 (0.73)	4.18 (0.60)	.06

Item (Level of Ability):	Participants Mean (SD)	Referents Mean (SD)	P-value
1.9: Communicate effectively with the media	2.78 (1.39)	2.73 (0.90)	.93
1.10: Pitch a project to potential funders or supporters	2.78 (0.67)	2.91 (1.04)	.74
1.11: Build and manage collaborative teams	3.33 (0.87)	3.36 (1.03)	.94
1.12: Establish strategic partnerships and alliances	3.00 (0.71)	2.91 (1.04)	.82
1.13: Negotiate and resolve conflict effectively	2.78 (1.09)	3.73 (0.79)	.046
1.14: Manage process and projects effectively and efficiently	3.78 (0.83)	3.64 (1.03)	.74
1.15: Continue to learn and grow on an ongoing basis throughout my career	3.67 (1.32)	4.18 (0.75)	.32
1.16: Consider trade-offs of investing in different areas	3.22 (1.30)	3.27 (0.79)	.92
1.17: Recognize and manage my innate and implicit biases	3.22 (1.30)	3.73 (0.65)	.31
1.18: Effectively and respectfully engage diverse groups of colleagues, trainees, and patients	3.67 (0.87)	4.18 (0.60)	.15
1.19: Understand what disruptive innovation is and how it impacts our lives	1.67 (0.87)	2.73 (1.10)	.027
1.20: Lead in times of change and uncertainty	2.33 (0.87)	2.82 (0.87)	.23
1.21: Create cultures that nurture innovation	2.67 (0.87)	2.91 (0.94)	.56
Item (Agreement with Statement):	**Participants Mean (SD)**	**Referents Mean (SD)**	**P-value**
2.1: BUSM/SPH/BMC cares about me	2.11 (0.93)	2.27 (0.79)	.68
2.2: I am receiving guidance and/or support for my progress/performance	2.22 (0.83)	2.55 (0.69)	.37
2.3: BU Medical Campus is a place where careers can develop	2.44 (1.01)	2.91 (0.30)	.22
2.4: I am connected to and supported by my colleagues at work	2.78 (0.83)	3.18 (0.40)	.21
Item (Behaviors in the Workplace)	**Participants Mean (SD)**	**Referents Mean (SD)**	**P-value**
3.1: Work toward a solution rather than just identifying a problem	3.78 (0.44)	3.82 (0.75)	.88
3.2: Pull a team together when you see a problem	3.33 (0.71)	3.73 (0.90)	.29
3.3: Initiate action when you see a problem	3.67 (0.71)	4.09 (0.70)	.20
3.4: Ensure ongoing self-awareness through reflection	3.44 (0.88)	4.00 (0.63)	.14
3.5: Ensure ongoing self-awareness by eliciting feedback from colleagues	2.67 (0.71)	3.45 (0.93)	.046
3.6: Take responsibility to provide constructive feedback to colleagues with whom you are working, without being asked.	2.78 (0.97)	3.45 (0.93)	.13
3.7: Fully engage with team members and dedicate the time/effort needed (when you are a member of a team)	4.22 (0.83)	4.18 (0.75)	.91

Light blue shading: items with statistically significant differences

Connectivity Scale: Twenty four items were scored on a 4-point Likert scale from 0-3, with 0 = not at all, 1 = somewhat, 2 = mostly, and 3 = completely. Five of the 24 statements representing how respondents felt about their community prior to the initiation of ACIT received significantly different responses. For each of these statements, the reference group expressed more agreement.

The Connectivity Scale also asked the general question, "How important is it to you to feel a sense of community with other community members?" and responses were scored on a 7-point Likert scale, with 1= not at all important and 7 = extremely important. There was no significant difference in the perceived importance of community for the ACIT participants and the referents.

Each of the four SCI-2 sub-scales (reinforcement of needs, membership, influence, and shared emotional connection) had a max score of 18. The only significant difference for the sub-scales on the pre-intervention survey was for "reinforcement of needs," in which case the average score for the participants was lower than the average score for the reference group. Lastly, the max score for the total SCI-2 was 72, and the average total SCI-2 score for ACIT participants (37.30) was lower than the average total SCI-2 score for the reference group (45.75); however, this difference was not significant (p=.067).

Table 7: PRE-Intervention Connectivity Scale

Item (Agreement with Statement):	Participants Mean (SD)	Referents Mean (SD)	P-value
2.1: I get important needs of mine met because I am part of this community.	1.30 (0.48)	1.92 (0.29)	.003
2.2: Community members and I value the same things.	1.30 (0.48)	2.00 (0.43)	.002
2.3: This community has been successful in getting the needs of its members met.	0.70 (0.48)	1.17 (0.39)	.025
2.4: Being a member of this community makes me feel good.	1.60 (0.70)	2.08 (0.51)	.09
2.5: When I have a problem, I can talk about it with members of this community.	1.70 (0.67)	2.17 (0.58)	.10
2.6: People in this community have similar needs, priorities, and goals.	1.80 (0.63)	1.75 (0.75)	.87
2.7: I can trust people in this community.	1.60 (0.70)	2.08 (0.51)	.09
2.8: I can recognize most of the members of this community.	1.70 (0.67)	1.83 (0.72)	.66
2.9: Most community members know me.	1.50 (0.85)	1.67 (0.78)	.64
2.10: This community has symbols and expressions of membership such as clothes, signs, art, architecture, logos, landmarks, and flags that people can recognize.	1.00 (0.82)	1.50 (0.90)	.19
2.11: I put a lot of time and effort into being part of this community.	1.80 (0.79)	2.17 (0.83)	.30
2.12: Being a member of this community is a part of my identity.	2.00 (1.05)	2.25 (0.87)	.56
2.13: Fitting into this community is important to me.	1.90 (0.88)	2.25 (0.45)	.27
2.14: This community can influence other communities.	1.90 (0.88)	2.08 (0.67)	.59
2.15: I care about what other community members think of me.	2.20 (0.79)	2.50 (0.52)	.32
2.16: I have influence over what this community is like.	0.90 (0.74)	1.25 (0.75)	.29
2.17: If there is a problem in this community, members can get it solved.	0.80 (0.63)	1.33 (0.49)	.044
2.18: This community has good leaders.	1.20 (0.79)	1.58 (0.51)	.21
2.19: It is very important to me to be a part of this community.	1.80 (0.63)	2.00 (0.60)	.46
2.20: I am with other community members a lot and enjoy being with them.	1.80 (0.92)	1.92 (0.90)	.77
2.21: I expect to be a part of this community for a long time.	2.00 (0.67)	1.92 (0.51)	.75

Item (Agreement with Statement):	Participants Mean (SD)	Referents Mean (SD)	P-value
2.22: Members of this community have shared important events together, such as holidays, celebrations, or disasters.	1.40 (1.07)	2.00 (0.85)	.17
2.23: I feel hopeful about this community.	1.50 (0.53)	2.08 (0.51)	.017
2.24: Members of this community care about each other.	1.90 (0.74)	2.25 (0.75)	.29
Additional Questions:	Participants Mean (SD)	Referents Mean (SD)	P-value
How important is it to you to feel a sense of community with other community members?"	5.70 (1.06)	5.75 (1.54)	.93
Subscale 1: reinforcement of needs	8.40 (2.63)	11.08 (1.56)	.013
Subscale 2: membership	9.60 (3.10)	11.50 (3.15)	.17
Subscale 3: influence	8.90 (3.63)	11.00 (2.17)	.13
Subscale 4: shared emotional connections	10.40 (3.50)	12.17 (2.89)	.22
Total SCI-2 score	37.30 (11.27)	45.75 (8.30)	.07

Light blue shading: items with statistically significant differences

The first question from The Alfred P. Sloan Faculty Survey that was included was "All things considered, how satisfied are you with your faculty career at your institution?" This item was scored on a 5-point Likert scale, with 1 = very dissatisfied and 5 = very satisfied. Since The Alfred P. Sloan Faculty Survey only included four categories, we combined the "very dissatisfied" and "dissatisfied" categories from the Knowledge, Skills, and Attitudes Survey and equated it to Sloan's "not at all satisfied" category. The analyses identified no significant difference between the responses of the participants and the reference group or between the participants and the general BUSM faculty (p=.41, p= .26, respectively). However, the validity of the latter result is limited by the fact that different rating scales were used for the two instruments.

Table 8: PRE-Intervention Career Satisfaction at BUMC

Career Satisfaction	N (%) of Participants	N (%) of Referents	Career Satisfaction at BUSM: The Alfred P. Sloan Faculty Survey	% of BUSM faculty
Very dissatisfied	0	0	Not at all satisfied	4.1%
Dissatisfied	2 (20%)	0		
Neutral	2 (20%)	2 (16.7%)	Slightly satisfied	9.5%
Satisfied	5 (50%)	8 (66.7%)	Somewhat satisfied	44.1%
Very Satisfied	1 (10%)	2 (16.7%)	Very satisfied	42.3%

The second question from The Alfred P. Sloan Faculty Survey asked "Which of the following are the most important reasons you stay at your institution?" Both the participants and referents selected their research and professional work, their patient care/clinical work, their colleagues, and the city/community in which the institution is located among their top five. The participants' top five also included their position, rank, and responsibility, while the referents' fifth choice was a tie between their teaching/education and the fact that it is difficult to find a more desirable position elsewhere. Of the 14 choices provided, only one appears to be significantly different between the groups, with more participants indicating that their position, rank, and responsibility are important factors compared to the referents. However, the percent of participants who selected this item was not significantly higher when compared to all BUSM faculty.

Table 9: PRE-Intervention Reasons for Staying at this Institution

Reasons for Staying at this Institution	N (%) of Participants	N (%) of Referents	% of BUSM faculty
1. It is difficult to find a more desirable position elsewhere.	5 (50%)	5 (41.7%)	36.6%
2. The research and professional work that I am able to conduct here.	7 (70%)	5 (41.7%)	56.8%
3. The patient care/clinical work that I do here.	7 (70%)	10 (83.3%)	44.2%
4. The teaching/education work that I do here.	5 (50%)	10 (83.3%)	48.7%
5. The position, rank, and responsibility I have here.	7 (70%)	2 (16.7%) p=.027	41.0%
6. The visibility I have here.	4 (40%)	2 (16.7%)	21.7%
7. The salary I have here.	3 (30%)	0	23.6%
8. The financial resources I have here.	2 (20%)	0	8.7%
9. The reputation of the institution.	1 (10%)	1 (8.3%)	24.7%
10. The colleagues I have here.	7 (70%)	12 (100%)	69.8%
11. The support the institution provides for career flexibility.	3 (30%)	3 (25%)	14.9%
12. The support the institution provides for balancing my work and personal or family life.	2 (20%)	3 (25%)	14.9%
13. My spouse/partner has a career in this institution/community.	2 (20%)	1 (8.3%)	21.3%
14. The city/community in which the institution is located.	7 (70%)	6 (50%)	56.8%

Light blue shading: items with statistically significant differences

Post-Intervention Results:

Knowledge, Skills, and Attitudes Survey: Four significant differences were

identified between the participants and referents with regard to their perceptions of

knowledge, skills, and attitudes <u>after</u> the ACIT program was completed. In all cases, the

participants reported higher mean scores compared to the reference group.

Table 10: POST-Intervention Knowledge, Skills, and Attitudes Survey

Item (Level of Ability):	Participants Mean (SD)	Referents Mean (SD)	P-value
1.1: Identify my own strengths and weaknesses	4.00 (0.50)	4.18 (0.40)	.39
1.2: Establish a development plan for my career	4.00 (0.50)	3.27 (0.47)	.004
1.3: Recognize who our stakeholders are and how to meet their needs	3.89 (0.60)	3.18 (0.87)	.047
1.4: Improve both quality and efficiency	4.11 (0.60)	3.55 (0.69)	.067
1.5: Be a leader who is visionary and transformative	3.78 (0.44)	3.09 (1.14)	.09
1.6: Be a leader who is able to fulfill daily obligations and tasks	4.56 (0.53)	4.00 (0.77)	.07
1.7: Understand where, when, and why we spend resources	3.89 (1.05)	3.73 (0.79)	.71
1.8: Communicate effectively with colleagues	4.44 (0.53)	4.09 (0.54)	.16
1.9: Communicate effectively with the media	3.44 (1.24)	2.73 (1.01)	.18
1.10: Pitch a project to potential funders or supporters	3.89 (0.33)	3.36 (0.92)	.10
1.11: Build and manage collaborative teams	4.00 (0.00)	3.73 (1.10)	.43
1.12: Establish strategic partnerships and alliances	4.00 (0.50)	3.45 (1.04)	.14
1.13: Negotiate and resolve conflict effectively	4.00 (0.50)	3.82 (0.75)	.53
1.14: Manage process and projects effectively and efficiently	4.33 (0.71)	3.64 (0.92)	.07
1.15: Continue to learn and grow on an ongoing basis throughout my career	4.44 (0.53)	4.00 (0.77)	.15
1.16: Consider trade-offs of investing in different areas	4.11 (0.60)	3.55 (0.52)	.041
1.17: Recognize and manage my innate and implicit biases	4.11 (0.60)	3.64 (0.81)	.15
1.18: Effectively and respectfully engage diverse groups of colleagues, trainees, and patients	4.22 (0.44)	4.00 (0.63)	.37
1.19: Understand what disruptive innovation is and how it impacts our lives	3.56 (0.73)	2.73 (1.19)	.07
1.20: Lead in times of change and uncertainty	3.89 (0.60)	3.27 (0.90)	.09
1.21: Create cultures that nurture innovation	4.00 (0.00)	3.36 (1.03)	.07
Item (Agreement with Statement):	**Participants Mean (SD)**	**Referents Mean (SD)**	**P-value**
2.1: BUSM/SPH/BMC cares about me	3.44 (0.73)	2.45 (0.52)	.004
2.2: I am receiving guidance and/or support for my progress/performance	3.22 (0.97)	2.73 (0.90)	.26
2.3: BU Medical Campus is a place where careers can develop	3.11 (0.93)	2.82 (0.60)	.43
2.4: I am connected to and supported by my colleagues at work	3.22 (0.67)	3.09 (0.70)	.67

Item (Behaviors in the Workplace):	Participants Mean (SD)	Referents Mean (SD)	P-value
3.1: Work toward a solution rather than just identifying a problem	4.33 (0.50)	4.36 (0.50)	.90
3.2: Pull a team together when you see a problem	3.56 (0.73)	3.27 (0.79)	.42
3.3: Initiate action when you see a problem	4.00 (0.71)	4.09 (0.54)	.76
3.4: Ensure ongoing self-awareness through reflection	4.22 (0.67)	4.09 (0.70)	.67
3.5: Ensure ongoing self-awareness by eliciting feedback from colleagues	3.33 (1.00)	3.00 (0.63)	.40
3.6: Take responsibility to provide constructive feedback to colleagues with whom you are working, without being asked.	3.89 (0.93)	3.27 (0.90)	.15
3.7: Fully engage with team members and dedicate the time/effort needed (when you are a member of a team)	4.33 (0.50)	4.27 (0.79)	.84

Light blue shading: items with statistically significant differences

When comparing ACIT participants' pre-intervention and post-intervention responses on the Knowledge, Skills, and Attitudes Survey, their mean scores increased for all 32 items, with 20 of the 32 gains being statistically significant. Conversely, the referents reported 16 gains, 10 losses, and 6 even scores, with only 1 gain being significant. Thirteen of the gains made by participants were also statistically significant when comparing the pre/post changes in ratings between participants and referents.

Table 11: Knowledge, Skills, and Attitudes Survey – Pre/Post Changes

Item (Level of Ability)	Participants				Referents				Change Difference
	PRE Mean	POST Mean	Mean change (SD)	P-value	PRE Mean	POST Mean	Mean change (SD)	P-value	P-value
1.1: Identify my own strengths and weaknesses	3.78	4.00	0.22 (0.44)	.17	4.18	4.18	0.00 (0.44)	1.00	.28
1.2: Establish a development plan for my career	3.00	4.00	1.00 (0.71)	.003	3.27	3.27	0.00 (0.77)	1.00	.008
1.3: Recognize who our stakeholders are and how to meet their needs	2.67	3.89	1.22 (1.39)	.030	3.27	3.18	-0.09 (1.04)	.78	.034
1.4: Improve both quality and efficiency	3.11	4.11	1.00 (1.00)	.017	3.45	3.55	0.09 (0.83)	.72	.045
1.5: Be a leader who is visionary and transformative	2.44	3.78	1.33 (1.00)	.004	2.64	3.09	0.45 (1.13)	.21	.08
1.6: Be a leader who is able to fulfill daily obligations and tasks	4.00	4.56	0.56 (0.53)	.013	3.91	4.00	0.09 (1.04)	.78	.22
1.7: Understand where, when, and why we spend resources	2.22	3.89	1.67 (1.22)	.004	3.18	3.73	0.54 (0.82)	.05	.035
1.8: Communicate effectively with colleagues	3.56	4.44	0.89 (0.93)	.021	4.18	4.09	-0.09 (0.70)	.68	.020
1.9: Communicate effectively with the media	2.78	3.44	0.67 (1.00)	.08	2.73	2.73	0.00 (0.89)	1.00	.14
1.10: Pitch a project to potential funders or supporters	2.78	3.89	1.11 (0.78)	.003	2.91	3.36	0.45 (0.69)	.05	.07
1.11: Build and manage collaborative teams	3.33	4.00	0.67 (0.87)	.050	3.36	3.73	0.36 (0.81)	.17	.43
1.12: Establish strategic partnerships and alliances	3.00	4.00	1.00 (0.87)	.009	2.91	3.45	0.54 (0.93)	.08	.28
1.13: Negotiate and resolve conflict effectively	2.78	4.00	1.22 (1.30)	.023	3.73	3.82	0.09 (0.70)	.68	.038
1.14: Manage process and projects effectively and efficiently	3.78	4.33	0.56 (0.88)	.10	3.64	3.64	0.00 (1.00)	1.00	.20

	Participants				Referents				Change Difference
Item (Level of Ability)	PRE Mean	POST Mean	Mean change (SD)	P-value	PRE Mean	POST Mean	Mean change (SD)	P-value	P-value
1.15: Continue to learn and grow on an ongoing basis throughout my career	3.67	4.44	0.78 (1.30)	.11	4.18	4.00	-0.18 (0.75)	.44	.07
1.16: Consider trade-offs of investing in different areas	3.22	4.11	0.89 (1.45)	.10	3.27	3.55	0.27 (0.79)	.28	.28
1.17: Recognize and manage my innate and implicit biases	3.22	4.11	0.89 (1.27)	.06	3.73	3.64	-0.09 (1.22)	.81	.10
1.18: Effectively and respectfully engage diverse groups of colleagues, trainees, and patients	3.67	4.22	0.56 (0.88)	.10	4.18	4.00	-0.18 (0.87)	.51	.08
1.19: Understand what disruptive innovation is and how it impacts our lives	1.17	3.56	1.89 (0.93)	<.001	2.73	2.73	0.00 (0.89)	1.00	<.001
1.20: Lead in times of change and uncertainty	2.33	3.89	1.56 (0.73)	<.001	2.82	3.27	0.45 (0.93)	.14	.008
1.21: Create cultures that nurture innovation	2.67	4.00	1.33 (0.87)	.002	2.91	3.36	0.45 (0.82)	.10	.034
Item (Agreement with Statement)	PRE Mean	POST Mean	Mean change (SD)	P-value	PRE Mean	POST Mean	Mean change (SD)	P-value	P-value
2.1: BUSM/SPH/BMC cares about me	2.11	3.44	1.33 (1.12)	.007	2.27	2.45	0.18 (0.75)	.44	.020
2.2: I am receiving guidance and/or support for my progress/performance	2.22	3.22	1.00 (0.87)	.009	2.55	2.73	0.18 (0.60)	.34	.031
2.3: BU Medical Campus is a place where careers can develop	2.44	3.11	0.67 (1.32)	.17	2.91	2.82	-0.09 (0.70)	.68	.15
2.4: I am connected to and supported by my colleagues at work	2.78	3.22	0.44 (0.88)	.17	3.18	3.09	-0.09 (0.70)	.68	.16
Item (Behaviors in the Workplace)	PRE Mean	POST Mean	Mean change (SD)	P-value	PRE Mean	POST Mean	Mean change (SD)	P-value	P-value
3.1: Work toward a solution rather than just identifying a problem	3.78	4.33	0.56 (0.53)	.013	3.82	4.36	0.54 (0.52)	.006	.97

Item (Behaviors in the Workplace)	Participants				Referents				Change Difference
	PRE Mean	POST Mean	Mean change (SD)	P-value	PRE Mean	POST Mean	Mean change (SD)	P-value	P-value
3.2: Pull a team together when you see a problem	3.33	3.56	0.22 (0.97)	.51	3.73	3.27	-0.45 (0.69)	.05	.10
3.3: Initiate action when you see a problem	3.67	4.00	0.33 (1.00)	.35	4.09	4.09	0.00 (.045)	1.00	.38
3.4: Ensure ongoing self-awareness through reflection	3.44	4.22	0.78 (0.83)	.023	4.00	4.09	0.09 (1.04)	.78	.12
3.5: Ensure ongoing self-awareness by eliciting feedback from colleagues	2.67	3.33	0.67 (0.87)	.050	3.45	3.00	-0.45 (0.69)	.05	.006
3.6: Take responsibility to provide constructive feedback to colleagues with whom you are working, without being asked.	2.78	3.89	1.11 (1.17)	.021	3.45	3.27	-0.18 (0.60)	.34	.011
3.7: Fully engage with team members and dedicate the time/effort needed (when you are a member of a team)	4.22	4.33	0.11 (0.60)	.59	4.18	4.27	0.09 (0.54)	.59	.94

Light blue shading: items with statistically significant differences

Connectivity Scale: Of the 24 individual items representing how respondents felt about their community <u>after</u> the completion of ACIT, there was only one statement that received significantly different responses between the two groups, in which case participants reported a lower score than the reference group for the statement "Being a member of this community is a part of my identity." Results identified no significant differences in how the two groups felt about the importance of feeling a sense of community, in their total sense of community scores, or when the items were analyzed by the four validated sub-scales.

Table 12: POST-Intervention Connectivity Scale

Item (Agreement with Statement):	Participants Mean (SD)	Referents Mean (SD)	P-value
2.1: I get important needs of mine met because I am part of this community.	2.10 (0.57)	1.92 (0.51)	.44
2.2: Community members and I value the same things.	1.90 (0.32)	2.17 (0.39)	.09
2.3: This community has been successful in getting the needs of its members met.	1.50 (0.97)	1.58 (0.51)	.81
2.4: Being a member of this community makes me feel good.	2.30 (0.67)	2.42 (0.51)	.66
2.5: When I have a problem, I can talk about it with members of this community.	2.20 (0.63)	2.25 (0.45)	.84
2.6: People in this community have similar needs, priorities, and goals.	2.00 (0.67)	2.00 (0.43)	1.00
2.7: I can trust people in this community.	2.20 (0.63)	2.17 (0.58)	.90
2.8: I can recognize most of the members of this community.	1.80 (0.92)	1.83 (0.58)	.92
2.9: Most community members know me.	1.70 (0.95)	1.92 (0.79)	.57
2.10: This community has symbols and expressions of membership such as clothes, signs, art, architecture, logos, landmarks, and flags that people can recognize.	1.20 (1.03)	1.42 (0.90)	.61
2.11: I put a lot of time and effort into being part of this community.	2.10 (0.57)	2.17 (0.72)	.81
2.12: Being a member of this community is a part of my identity.	2.10 (0.32)	2.58 (0.51)	.014

Item (Agreement with Statement):	Participants Mean (SD)	Referents Mean (SD)	P-value
2.13: Fitting into this community is important to me.	2.20 (0.63)	2.50 (0.52)	.25
2.14: This community can influence other communities.	2.20 (0.63)	2.00 (0.74)	.50
2.15: I care about what other community members think of me.	2.50 (0.53)	2.42 (0.51)	.71
2.16: I have influence over what this community is like.	1.60 (0.84)	1.75 (0.62)	.65
2.17: If there is a problem in this community, members can get it solved.	1.60 (0.97)	1.50 (0.52)	.77
2.18: This community has good leaders.	2.00 (0.94)	1.92 (0.51)	.81
2.19: It is very important to me to be a part of this community.	2.30 (0.67)	2.25 (0.45)	.84
2.20: I am with other community members a lot and enjoy being with them.	2.10 (0.88)	2.08 (0.67)	.96
2.21: I expect to be a part of this community for a long time.	2.10 (0.57)	2.33 (0.65)	.38
2.22: Members of this community have shared important events together, such as holidays, celebrations, or disasters.	1.80 (1.03)	1.92 (0.67)	.76
2.23: I feel hopeful about this community.	2.20 (0.63)	2.17 (0.72)	.91
2.24: Members of this community care about each other.	2.20 (0.79)	2.33 (0.49)	.65
Additional Questions:	Participants Mean (SD)	Referents Mean (SD)	P-value
How important is it to you to feel a sense of community with other community members?"	6.30 (0.48)	6.33 (0.49)	.88
Subscale 1: reinforcement of needs	12.00 (3.13)	12.33 (1.87)	.77
Subscale 2: membership	11.10 (2.28)	12.08 (2.11)	.31
Subscale 3: influence	12.10 (3.76)	12.08 (2.23)	.99
Subscale 4: shared emotional connections	12.70 (4.14)	13.08 (2.39)	.80
Total SCI-2 score	47.90 (12.16)	49.58 (6.11)	.70

Light blue shading: items with statistically significant differences

When comparing the ACIT participants' pre-intervention and post-intervention responses on the SCI-2, their mean scores increased for all 24 items, with 9 of the 24 gains being statistically significant. Conversely, the referents reported 17 gains, 4 losses, and 3 even scores, with only 2 gains being significant. Two of the gains made by

participants remained statistically significant when comparing the changes in ratings between participants and referents.

There were no significant differences between or within the groups' responses to the question "How important is it to you to feel a sense of community with other community members?" However, the participants had a significant gain in their total SCI-2 scores, as well as their subscale scores for reinforcement of needs and shared emotional connections, while the referents did not experience any significant gains in their total SCI-2 scores or their subscale scores.

Table 13: Connectivity Scale – Pre/Post Changes

Statement	Participants				Referents				Change Difference
	PRE Mean	POST Mean	Mean change (SD)	P-value	PRE Mean	POST Mean	Mean change (SD)	P-value	P-value
2.1: I get important needs of mine met because I am part of this community.	1.30	2.10	0.80 (0.63)	.003	1.92	1.92	0.00 (0.60)	1.00	.007
2.2: Community members and I value the same things.	1.30	1.90	0.60 (0.52)	.005	2.00	2.17	0.17 (0.72)	.44	.12
2.3: This community has been successful in getting the needs of its members met.	0.70	1.50	0.80 (0.79)	.011	1.17	1.58	0.42 (0.51)	.017	.21
2.4: Being a member of this community makes me feel good.	1.60	2.30	0.70 (0.67)	.010	2.08	2.42	0.33 (0.65)	.10	.21
2.5: When I have a problem, I can talk about it with members of this community.	1.70	2.20	0.50 (0.85)	.10	2.17	2.25	0.08 (0.79)	.72	.25
2.6: People in this community have similar needs, priorities, and goals.	1.80	2.00	0.20 (0.92)	.51	1.75	2.00	0.25 (1.06)	.43	.91
2.7: I can trust people in this community.	1.60	2.20	0.60 (0.52)	.005	2.08	2.17	0.08 (0.51)	.59	.030
2.8: I can recognize most of the members of this community.	1.70	1.80	0.10 (0.74)	.68	1.83	1.83	0.00 (0.85)	1.00	.77
2.9: Most community members know me.	1.50	1.70	0.20 (1.40)	.66	1.67	1.92	0.25 (0.75)	.28	.92
2.10: This community has symbols and expressions of membership such as clothes, signs, art, architecture, logos, landmarks, and flags that people can recognize.	1.00	1.20	0.20 (1.03)	.56	1.50	1.42	-0.08 (1.24)	.82	.57
2.11: I put a lot of time and effort into being part of this community.	1.80	2.10	0.30 (1.06)	.39	2.17	2.17	0.00 (0.85)	1.00	.48

Statement	Participants				Referents				Change Difference
	PRE Mean	POST Mean	Mean change (SD)	P-value	PRE Mean	POST Mean	Mean change (SD)	P-value	P-value
2.12: Being a member of this community is a part of my identity.	2.00	2.10	0.10 (0.99)	.76	2.25	2.58	0.33 (0.89)	.22	.57
2.13: Fitting into this community is important to me.	1.90	2.20	0.30 (0.95)	.34	2.25	2.50	0.25 (0.62)	.19	.89
2.14: This community can influence other communities.	1.90	2.20	0.30 (0.95)	.34	2.08	2.00	-0.08 (0.90)	.75	.35
2.15: I care about what other community members think of me.	2.20	2.50	0.30 (0.82)	.28	2.50	2.42	-0.08 (0.51)	.59	.22
2.16: I have influence over what this community is like.	0.90	1.60	0.70 (0.82)	.025	1.25	1.75	0.50 (0.67)	.026	.55
2.17: If there is a problem in this community, members can get it solved.	0.80	1.60	0.80 (1.03)	.037	1.33	1.50	0.17 (0.83)	.50	.14
2.18: This community has good leaders.	1.20	2.00	0.80 (0.79)	.011	1.58	1.92	0.33 (0.78)	.17	.18
2.19: It is very important to me to be a part of this community.	1.80	2.30	0.50 (0.85)	.10	2.00	2.25	0.25 (0.87)	.34	.50
2.20: I am with other community members a lot and enjoy being with them.	1.80	2.10	0.30 (0.67)	.19	1.92	2.08	0.17 (0.72)	.44	.66
2.21: I expect to be a part of this community for a long time.	2.00	2.10	0.10 (0.57)	.59	1.92	2.33	0.42 (0.67)	.05	.24
2.22: Members of this community have shared important events together, such as holidays, celebrations, or disasters.	1.40	1.80	0.40 (0.97)	.22	2.00	1.92	-0.08 (1.00)	.78	.26
2.23: I feel hopeful about this community.	1.50	2.20	0.70 (0.48)	.001	2.08	2.17	0.08 (0.90)	.75	.06
2.24: Members of this community care about each other.	1.90	2.20	0.30 (0.48)	.08	2.25	2.33	0.08 (0.69)	.67	.39

Additional Questions	Participants				Referents				Change Difference
	PRE Mean	POST Mean	Mean change (SD)	P-value	PRE Mean	POST Mean	Mean change (SD)	P-value	P-value
How important is it to you to feel a sense of community with other community members?"	5.70	6.30	0.60 (0.97)	.08	5.75	6.33	0.58 (1.51)	.21	.98
Subscale 1: reinforcement of needs	8.40	12.00	3.60 (3.10)	.005	11.08	12.33	1.25 (2.56)	.12	.07
Subscale 2: membership	9.60	11.10	1.50 (4.43)	.31	11.50	12.08	0.58 (3.32)	.56	.60
Subscale 3: influence	8.90	12.10	3.20 (4.57)	.05	11.00	12.08	1.08 (2.78)	.20	.22
Subscale 4: shared emotional connections	10.40	12.70	2.30 (3.06)	.041	12.17	13.08	0.92 (3.18)	.34	.31
Total SCI-2 score	37.30	47.90	10.6 (13.7)	.036	45.75	49.58	3.83 (9.40)	.18	.20

Light blue shading: items with statistically significant differences

For the first question from The Alfred P. Sloan Faculty Survey ("All things considered, how satisfied are you with your faculty career at your institution?"), the overall satisfaction of ACIT participants <u>after</u> the ACIT program was significantly higher compared to the referents (p=.033).

Table 14: POST-Intervention Career Satisfaction at BUMC

Career Satisfaction	N (%) of Participants	N (%) of Referents
Very dissatisfied	0	0
Dissatisfied	0	0
Neutral	1 (10%)	0
Satisfied	4 (40%)	11 (91.7%)
Very Satisfied	5 (50%)	1 (8.3%)

The second question from The Alfred P. Sloan Faculty Survey asked "Which of the following are the most important reasons you stay at your institution?" Once again, both groups selected their research and professional work, their patient care/clinical work, and their colleagues in their top five. In the post-intervention survey, they also shared teaching/education in their top five, with the participants including their position, rank, and responsibility while the referents included the city/community in which the institution is located. Of the 14 choices provided, only one appeared to be significantly different between the groups. Once again, more participants (100%) indicated that their position, rank, and responsibility are important factors compared to the referents (25%) (p=<.005) and also when compared to all BUSM faculty (41%) (p=.002). There were no significant changes for either group on any items when comparing their pre-intervention and post-intervention selections.

Table 15: POST-Intervention Reasons for Staying at this Institution

Reasons for staying at this institution:	N (%) of Participants	N (%) of Referents	% of BUSM faculty
1. It is difficult to find a more desirable position elsewhere	5 (50%)	3 (25%)	36.6%
2. The research and professional work that I am able to conduct here	8 (80%)	6 (50%)	56.8%
3. The patient care/clinical work that I do here.	7 (70%)	10 (83.3%)	44.2%
4. The teaching/education work that I do here.	8 (80%)	9 (75%)	48.7%
5. The position, rank, and responsibility I have here	10 (100%)	3 (25%) p=<.005	41.0% p=.002
6. The visibility I have here.	3 (30%)	1 (8.3%)	21.7%
7. The salary I have here.	1 (10%)	0	23.6%
8. The financial resources I have here.	1 (10%)	0	8.7%
9. The reputation of the institution.	2 (20%)	2 (16.7%)	24.7%
10. The colleagues I have here.	7 (70%)	12 (100%)	69.8%
11. The support the institution provides for career flexibility.	1 (10%)	0	14.9%
12. The support the institution provides for balancing my work and personal or family life.	4 (40%)	3 (25%)	14.9%
13. My spouse/partner has a career in this institution/community.	1 (10%)	3 (25%)	21.3%
14. The city/community in which the institution is located.	6 (60%)	6 (50%)	56.8%

Light blue shading: items with statistically significant differences

Module Satisfaction Questionnaires:

For the questions regarding content on the Module Satisfaction Questionnaires,

answers were selected from a Likert scale of 1-5, with 1 = poor and 5 = excellent. For the

questions regarding facilitation, answers were selected from a Likert scale of 1-5, with 1

= very ineffective and 5 = very effective.

For the question "How valuable was the CONTENT of the module for you overall?" the average rating among the six modules was 4.17 (range = 4.00 - 4.42). In addition to rating the overall content of each module, participants also rated the content and facilitation of each individual session, resulting in a session average of 4.06 for content (range = 2.71 − 5) and a session average of 4.14 for facilitation (range = 2.82 − 4.88). For the question "How helpful was the discussion in your LEARNING COMMUNITY?" the average rating among the six modules was 3.94 (range = 3.17 - 4.45). For the question "How helpful was the time spent meeting with your CAPSTONE PROJECT TEAM?" the average rating among the six modules was 3.88 (range = 3.70 - 4.35).

Qualitative Data:

Sixteen primary themes emerged through coding the transcripts of the focus groups with ACIT Participants and the interviews with Department Chairs, ACIT Staff, and BUMC Leadership, as well as the open-ended questions on the Module Satisfaction Questionnaires. The inter-rater reliability was found to be Kappa = 0.792 (p <.001), 95% CI (0.735, 0.849). The themes have been grouped into the following four categories, which are discussed below:

(1) Awareness of Mid-Career's Unique Qualities

(2) Factors that Impact Mid-Career Faculty Vitality (with 9 themes)

      A. Organizational mission and personal sense of purpose

    B. Available resources

    C. Opportunities to reflect, set goals, and develop

    D. Sense of community

    E. Opportunities for collaboration

    F. Guidance from mentors

    G. Work-life integration

    H. Positive reinforcement

    I. Institutional culture

(3) ACIT's Infrastructure and Design (with 6 themes)

    A. Committed staff

    B. Peer mentoring and feedback

    C. Protected time

    D. Location and length

    E. Keeping the program on task and on time

    F. Added incentives

(4) Impact of ACIT on Faculty and Institutional Vitality (with 5 themes):

    A. ACIT's Ability to Achieve its Stated Learning Goals [with 4 sub-themes]

    B. ACIT's Curricular Content

    C. Effectiveness of Pedagogies Used [with 4 sub-themes]

    D. Impact of ACIT on the Participants' Work

    E. Impact of ACIT on the Institution [with 6 sub-themes]

(1) Awareness of Mid-Career's Unique Qualities

Representatives from each of the evaluation constituencies commented on some defining characteristics of mid-career for themselves, their colleagues, or their faculty. Department chairs noted that "the people in the middle get the short shrift," that "mid-level faculty members are at-risk throughout the population," and that "the changes that have occurred with salary, expectations, and promotions have put the squeeze most on mid-career faculty… They are the most vulnerable. And yet they are also the most valuable, because they have all these skills that they've accrued over time and they are hopefully going to be productively working here for years ahead. So they are the exact people that you want to keep, not only from going anywhere, but working at a really productive level." Similarly, one ACIT staff member remarked that "the most expensive employees to replace are your mid-career employees," while another expressed that "mid-career faculty suffer due to the isolation, the feeling that nobody cares about them, the feeling that they don't have the skills to get to the next level." Notably, a BUMC leader expressed that "mid-career faculty vitality is absolutely an issue and one that we need to address. A mid-career faculty development program is an important tool to re-energize faculty commitment." Meanwhile, a participant stated, "I think it is universally acknowledged that junior faculty in academic medicine need mentorship and resources in order to thrive and succeed, but it is less clear that mid-career faculty also need support," with another stating clearly and simply, "Mid-career is a really lonely place."

(2) Factors that Impact Mid-Career Faculty Vitality

The evaluation uncovered nine themes related to factors impacting mid-career faculty vitality, both at BUMC and globally: 1) organizational mission and personal sense of purpose, 2) available resources, 3) opportunities to reflect, set goals, and develop, 4) sense of community, 5) opportunities for collaboration, 6) guidance from mentors, 7) work-life integration, 8) positive reinforcement, and 9) institutional culture.

A. Organizational mission and personal sense of purpose

Multiple participants commented on the importance of the organizational mission, the amount of time that they had already invested in the organization, and their own sense of purpose while on the job. Similarly, a department chair stated, "There needs to be proper alignment between a faculty member's personal prerogatives and those of the university. The challenge is to have that dialogue and to make sure that faculty are committed to the right things from day one."

B. Available resources

The majority of department chairs indicated that time (and how it is related to funding) is their biggest challenge in faculty recruitment and development. Several chairs and participants commented that salaries are too low, remarking that most BUMC faculty are paid 20% below average for their discipline and that they could transition to private practice and see a significant (50-100%) increase in salary. Another chair mentioned that the CARTs model within BMC (which is the hospital's current financial policy that allocates funding for each faculty member's percent effort in the four primary categories: Clinical, Administrative, Research, and Teaching) can be especially challenging for mid-

career faculty who haven't written grants or developed an administrative skill, in that they must figure out how to support their salary on clinical revenue alone. Furthermore, one department chair reported struggling to balance obligations for clinical care with what is needed for faculty to grow: "There is the inherent conflict for all clinical faculty concerning whether to spend the next moment doing something that is worthwhile for their long-term development vs. something that generates revenue from patient care." Similarly, another chair stated, "We have a lot of roles in the department that we think are important… residency directors, teachers, etc… that we don't have a funding source for. So it is a real challenge for departments to provide protected time for people to develop their academic careers. We have a lot of faculty, and they all certainly want the development, but the challenge is a combination of time and money."

While clinical department chairs acknowledge that the constraints on their budgets impact mid-career faculty vitality, research faculty have to face their own unique financial concerns: "My funding is constantly at risk, both externally and internally. This is stressful," and "Whether I chose to stay at this institution is dependent on my ability to secure future research funding." This sentiment was particularly striking for the ACIT participants from the School of Public Health (SPH): "If you are going to remain on the SPH faculty, there is only one name in the game, and that is funding. It is harsh, but true."

C. **Opportunities to reflect, set goals, and develop**

Several participants commented that their satisfaction is influenced by having opportunities to grow, learn, and make contributions to the institution. Regarding ACIT

specifically, the timing seemed right for several participants to pursue this type of

program. One noted, "I've never had any formal leadership training, and I have wanted to

become a more effective leader." Another stated, "I was looking for ways to learn more

about opportunities within the medical center and how I can be useful." An ACIT staff

member also noted the significance of "giving the participants time and space to reflect,

which in mid-career, they just never get."

This theme was also voiced by the department chairs, many of whom

acknowledged that unless faculty have concrete goals, then by the time they become mid-

career they are often lacking an area of emphasis or focused development: "Helping

people carve out the time to find the connection between their passion and available

funding sources can be difficult. They have to get their interests to line up nicely with the

federal priorities. And (the funding agencies) don't want to get more of the same. It has to

be innovative… something that will be a game changer, something transformative."

D. Sense of community

Both participants and department chairs commented on the weight that one's

sense of community can have on vitality. Several participants noted that networks are the

key to staying motivated and being successful, while one chair stated, "It's really

challenging to build a departmental community when you have (so many) faculty. If

people only care that they are part of their own unit, then they are not going to commit

the same level of energy to the institutional or departmental success. We need to build

more community (in order for) people to feel more engaged." Department chairs also

noted that there are a lot of high-quality faculty development programs provided by

neighboring institutions, but that the downside of outsourcing faculty development is that it eliminates the possibility of building internal community.

E. Opportunities for collaboration

In a related theme, several interviewees and focus group participants expressed that collaboration with peers and colleagues is another key to staying engaged. As one ACIT staff member noted, "There is this recognition that the higher up you get, the lonelier it gets." Several chairs explained that finding opportunities for their faculty to collaborate is part of their job. Their comments included, "There is a will to collaborate with people outside of one's department, but it is hard to find a way. I would love to give everyone a little more time to do it, and I know that they are yearning to do it," and "Helping people find the time to collaborate is much harder on an individual level. It is a real challenge." Others expressed that many of the people who choose to stay at BUMC do so because they appreciate the collaborative work environment.

F. Guidance from mentors

Mid-career faculty vitality also appears to be impacted by the support and guidance received from department chairs, clinical supervisors, and/or research mentors. As one department chair noted, "Helping people get focused is really important. A lot of people get lost because they aren't focused. Once they are focused on where they want to go, then they can do a skills assessment, and we can say, 'This is what you need help with and let's see what's out there for you to get that.'" ACIT participants reported mixed levels of satisfaction with the quality of guidance and support that they were receiving from their mentors. Relatedly, department chairs reported varying levels of supervision

that were required for their mid-career faculty: "As a new chair, I'm still trying to figure out everyone's path and what I can do to help them on that path. (The ACIT participant in my department) is great because she is very proactive. She is steering her own ship. I just have to give her what she needs. Other people don't have a clear idea of where they are going. Helping them sort out where they want to go is very helpful. You can't get there unless you know where you are going."

G. Work-life integration

Work-life integration is another well-documented influence on mid-career faculty vitality. Several participants indicated that it was crucial to have flexibility and control over their schedules, and to have support for balancing their work and personal lives. Similarly, a department chair questioned, "How do you get your faculty to be very productive clinically and still get the national/international reputation that is required for promotion? And how do they do all that while maintaining work-life balance?"

H. Positive reinforcement

Several evaluation participants also noted the impact that positive reinforcement through promotion, recognition, appreciation, and awards can have on mid-career faculty vitality. For example, there was general agreement that many contributions go unrecognized even though they may require a significant time commitment. In turn, faculty may be disheartened by the fact that they are not getting credit for the important things that they are doing. The department chairs consistently expressed concern that the promotion process at BUMC is arduous: "The bar is impossibly high… Faculty development programs should give you the tools to know how to get promoted, and if

you do those things, and you still don't get promoted, then that is a problem. And that is

the coin of the realm." Similarly, it was repeatedly emphasized that there needs to be

more clarity and inter-campus consistency around promotion criteria, "otherwise faculty

may feel that they are wasting their time on development if they aren't sure when/how it

will pay off. That can create consternation and frustration."

I. Institutional culture

Perhaps the most pervasive theme related to mid-career faculty vitality was

institutional support and precedent for faculty development, along with the importance of

messaging. On a positive note, the department chairs were in agreement that ACIT's

mere presence was viewed very positively by the faculty, especially with it occurring at a

level beyond the section and department: "Just the fact that there was the process and

there was the program is a reassuring message to the faculty at large… that the grant was

sought, the grant was received, and the program was conceived and implemented. Isn't

that a message that somebody at some level cares about the faculty and isn't that

important?" Several comments also focused on the importance of spreading awareness of

the program's existence and its collaborative funding sources due to the additive effect of

messaging from different angles.

On the downside, several interviewees felt that the lack of consistent, informed,

substantive faculty development efforts at BUMC sends a damning message about the

organization: "There are hundreds of faculty here, and we are doing so little on faculty

development, whereas if you go to Harvard, they have a machine. If we could push the

system to have some meaningful faculty development here, that would be incredibly

exciting. It is really bad here."

While institutional culture related to faculty development is certainly influential, so are the individual messages that were sent to the participants. In the words of a department chair, "The fact that they were selected gave them the message that they are recognized as valuable… So just to have a program that said 'We value you, and we want to help you figure out how to move forward in your career in a constructive way' was great from my perspective. 'We care, and we chose you.'" This sentiment was backed by participants who stated, "I feel deeply honored to have been selected to participate in the inaugural ACIT program. It was obvious from the start how much thought, effort and creativity went into developing this program for mid-career faculty," and "Merely being selected for a program that takes you out of the daily grind… I was constantly reminded that the institution must want us to succeed and do well if they put in all this effort to create the space for us to experience this type of program."

(3) ACIT's Infrastructure and Design

In addition to recognizing several factors impacting mid-career faculty vitality, evaluation participants also commented on the effectiveness of the program's infrastructure and design, which provides a foundation upon which to interpret the ACIT evaluation results. This section included six themes: 1) committed staff, 2) peer mentoring and feedback, 3) protected time, 4) location and length, 5) keeping the program on task and on time, and 6) added incentives.

A. Committed Staff

All constituencies commented on the importance of having committed staff at the helm of any faculty development program. One participant noted, "Emelia and Robina are excellent, they are well-suited to this. I really appreciated Emelia and all that she has been through trying to be a more introspective person. She is now someone I would absolutely go to for help on a whole range of issues," with another stating "Robina is a fantastic role-model and mentor… truly an incredible person." It was also noted that the remaining ACIT staff members were consistently appreciated, but their roles and responsibilities were not always clear to themselves or to others. There was general agreement that their skills could be more purposefully and explicitly leveraged in future iterations of this program.

B. Peer Mentoring and Feedback

In addition to great leadership, ACIT also benefited from the power of peer-mentoring. Participants noted that this required a great deal of trust, sharing, and support, all of which allowed them to clarify their goals and stay motivated to achieve them. While the inclusion of peer-*mentoring* was valued and appreciated by all, there appeared to be less success in the area of peer-*feedback*. One ACIT staff member noted, "I don't think we did a great job with helping people manage conflict. Many people are used to giving feedback to people they supervise, but they aren't used to giving feedback to their peers. I think we need to move from viewing feedback as a negative, but rather an opportunity for all of us to grow… (Peer-mentoring) is an extraordinary skill that is essential for all leaders, and the most effective leaders help reach into people's souls, help

them understand their own journey, so they can self-teach, self-actualize, and self-move."

Participants reported enjoying having peer-feedback included as an assignment and

would have appreciated more opportunities of this nature. In turn, ACIT staff members

reported a desire to include an intensive session on peer-mentoring in future programs, so

that participants could gain a greater sense of giving back.

C. Protected Time

For this first round of ACIT, clinicians were granted 10% protected time to

participate in the program. The funding to support the protection of clinical time came

from the CARTs system within BMC; therefore, the financial support was provided by

the hospital at large rather than the individual departments. Of note, this same protection

was not provided to faculty in SPH. When participants were asked whether the protected

time was essential, the results were mixed. Many indicated that they wouldn't have

applied without having the protected time in place. Conversely, the majority indicated

that, in hindsight, they probably could have participated even without the protected time.

Comments included acknowledging that they didn't let go of any responsibilities during

the program, but rather they merely shifted timelines and/or moved around funding

sources: "It was more just pushing things forward. So I'd cancel my Thursday clinic, but

those patients would show up somewhere else." Another participant said, "I think a lot of

the people who participated weren't primarily clinical, so I don't think the 10% of

protected time really took anything away from their responsibilities. So I like the model

of providing protected time, but I think there were very few people who actually fit that

model." However, those few who did fit the model stated that they did indeed have less

clinical responsibilities during the weeks of ACIT and that their participation hinged on that reduction in work load.

Regardless of whether the protected time was truly protected and/or necessary, the clinicians expressed gratitude for the symbolism in that it minimized the pressure or tension that would have surfaced without it. For example, one participant noted, "If one clinic got cancelled, then it would be overbooked the next week. So the work was still there and I definitely felt that, but the idea of having the protected time and having someone else carry my pager… that was critical to my being able to really participate and engage." On the other hand, the SPH participants expressed frustration around the tensions that arose related to prioritizing their responsibilities, since they didn't have any protected time for the program.

Although the participants were rather divided on the necessity of protected time, the majority of ACIT staff and department chairs were very supportive of this element: "Although someone like (ACIT participant in our department) figures out how to make it all work, having the protected time bought by CARTs is an important statement to the departments," and "If you don't put in the time, you can't get the outcome. I think it is completely unsustainable if you don't include the protected time. You have to look at it as an investment, not an expense." However, one department chair raised an important counterpoint: "When you ask someone to buy protected time, you also buy their demands, and you set yourself up for accountability that can be problematic." This chair suggested a compromise, perhaps consisting of a scholarship fund that could be provided to those in need.

D. Location and Length

Both participants and ACIT staff unanimously agreed that the off-campus location was a major strength of the program. The participants felt that, psychologically, it gave them more freedom to engage, generate creative ideas, and focus on the tasks at hand without feeling like they were simultaneously available and accountable to their colleagues. For example, one participant noted, "I thought it was critical to be off campus. The few days that we were here, the pull was absolutely present and everyone felt it." On the other hand, both ACIT staff and department chairs acknowledged that there may be less expensive off-campus options that would help decrease the overall cost of the program in the future.

There was also general agreement that having six modules spread out over nine months generated the feeling that ACIT was a longitudinal peer-learning laboratory. In addition, having two-day modules enabled participants to get into the rhythm that was necessary for real progress to take place: "I think two days back-to-back was essential. If it had been half days or even whole days sprinkled about, I just think it wouldn't have worked. At the end of the two days, we were exhausted, but in a good way. I think we really gave it our all. So, in my opinion, Thursday/Friday was perfect. You could focus on being there, have the weekend to recharge, and go back Monday ready to face the work." The only suggestion that was raised related to the structure of the program was to consider alternating the days of the week in order to allow more scheduling flexibility for the participants.

E. **Keeping the Program on Task and on Time**

The evaluation results emphasized the importance of keeping the program on task and on time. Participants suggested that the presenters could benefit from coaching on how to redirect the group when the discussion appears to be going off track. This was supported by some BUMC leaders and department chairs: "I misjudged what I could get through. It was a very interactive group, and as a new speaker in front of this group, and not really knowing their chemistry, I probably would have gauged the talk differently if I had a little more preparation and explicitness about what to expect."

The participants also appreciated knowing that the ACIT staff were strict about attendance and would ensure that the modules ended on time, as that allowed participants to effectively manage competing demands. However, they felt that the long program hours (8:00am – 5:30pm) sent a contradictory message about work-life integration. For example, "In contrast to clinical medicine, SPH (faculty life) is defined by flexibility in work hours, so these hours were a 'sticker shock.'" This was echoed by many participants from the clinical departments as well. Additionally, several participants commented that the days felt draining and that a 9:00am – 5:00pm schedule would be helpful in keeping people refreshed and engaged.

F. **Added Incentives**

The final infrastructure theme that emerged was the impact of added incentives. One participant noted, "The little things in general make the difference, and it doesn't matter what they are. Those things were really a strength of this program." For example, the provision of a Fitbit was considered by most to be a nice bonus. One participant said,

"I've lost 20 pounds in the past year, and it is because I started wearing the FitBit. I like this notion of wellness." Others noted that Fitbit's technical limitations made it less than ideal and suggested that there may be a better way to establish a proxy for work-life integration. Other perks, such as the food and chair massages, were also appreciated, but several participants indicated that these were costs that could be scaled back if there is less funding for future programs.

(4) Impact of ACIT on Faculty and Institutional Vitality

The five evaluation criteria that were established prior to the program's inception were used to guide the analysis below. Each criterion will be discussed individually, followed by a section of general conclusions drawn by the participants.

A. ACIT's ability to achieve its stated learning goals

1. Do participants feel they were able to self-reflect and pursue a personal development plan?

There appeared to be general consensus that the participants had ample opportunities to self-reflect and assess their strengths and areas for growth. One participant noted, "I would say that not a day goes by when I don't think about some aspect of ACIT. That alone is a reflection of what I've gotten out of the program. I'm reflecting a whole lot more on a day to day basis, rather than just once a year when I'm on vacation. There is a lot more daily introspection about how I'm interacting with colleagues, what projects I'm taking on, how I'm approaching conflicts with projects. So in the bigger picture, it is being mindful of my every day."

Discussions of personal development plans centered around the long-term value of the 360-degree evaluation. Participants reported appreciating the debriefing sessions with the ACIT staff, with several indicating that they would enjoy continued coaching once the second 360 is completed in June 2015: "This was all great for the nine months, but how do we keep it going? How do we maintain our motivation and excitement?" In addition, both participants and staff witnessed peer-coaching at work as others shared their self-reflections throughout the program.

Several participants also appreciated the time devoted to career planning and identifying goals that are aligned with one's values. One participant stated, "The different modules filled gaps for me and built a bridge to the next point along my career trajectory. I feel even more prepared for my future. ACIT has motivated me to move forward." Another said, "It was very helpful for me to define short and long term goals, what I think of as my legacy, what I want to do with the second half of my career." Another participant commented on the loyalty he/she feels as a result of this opportunity: "From the application process to the early exercises to the in-depth discussions that occurred during the sessions, improving myself for me and for BU/BMC was at the forefront my mind." While some participants reported setting concrete personal development plans, others only remembered loosely covering this concept. One of the ACIT staff members reported that they would aim to weave this goal more intentionally into the curriculum in the future.

Participants also mentioned being grateful for the space to focus on these topics without having to take a sabbatical: "Getting away from daily responsibilities and being

able to think about career and life goals with other people at the institution who are at a similar level has been very helpful." Lastly, multiple interviewees mentioned the utility of focusing on the process over the outcome. A department chair stated, "I don't think we should judge (the success of the program) by whether people got to their destination, but by the quality of the process they went through to get there. If you go through this process well, aligning your abilities with your aspirations, that is really key." Similarly, a participant said, "I think that we all felt more comfortable about our career trajectories by the end, though our success may not always be measurable with traditional academic metrics."

2. **Do participants feel connected to their peer cohort and to the institution as a result of their participation in ACIT?**

There is tremendous evidence suggesting that the prevailing strength of the program was its ability to create a cohesive cohort. Several BUMC leaders and department chairs commented on observing the high level of camaraderie that the group developed. An ACIT staff member said, "I would be stunned if everyone in the program didn't have sustained connections with at least one other person in the program that they didn't have before." This theme was well supported by the participants, one of whom said, "We developed community. We offered support to each other, teased each other, normalized each other's experiences, comforted angst, and offered recommendations which we took to heart and implemented with success on an individual basis." Several referred to this as the human factor, or the ability to connect over common issues despite being from different backgrounds. They expressed appreciation for simply knowing that

there are other people out there at the same place in their careers who are feeling the

same way and are eager to collaborate. Another expanded on how these relationships are

already reaping tangible dividends: "For me, ACIT is a group of real potential resources.

Just yesterday I had a problem arise, and now I have a go-to person who I know

exclusively from ACIT who can help me solve it." Comments on this topic also

addressed the loneliness that is prevalent in mid-career: "The personal connections were

so important for me. In my section, there isn't anybody really at my level, so these

connections were huge."

The evaluation results also suggest that many participants feel more connected to

BUMC as a result of the opportunities that ACIT provided to network with institutional

leaders. Several participants and ACIT staff members commented on the BUMC leaders

seeming much more accessible after they spoke about the successes and failures they

have encountered in running an organization: "Every single person (in ACIT)

understands that leading isn't just about making the right decisions, but that it is a lot

about the EQ skills that are the difference between effective and ineffective leaders, and I

think they really got exposed to that." While the participants certainly appreciated

hearing from the BUMC leaders, several leaders commented on the benefits of getting to

know the strengths and expertise of the ACIT participants as well. However, it appears

that the connections made between participants and BMC were more robust than the

connections made between participants and BUSM or SPH, likely due to more

involvement from the Faculty Practice Foundation in financially supporting and

participating in the program.

There were also several comments that alluded to a more global feeling of connectedness to the institution. In the articulate words of one participant, "Just because there was a project and a mission and a group of people internal to the institution working on the project makes me feel more attached to the institution by association. Even the people running the program are new connections and new reasons to feel connected to the institution." The connectedness theme also emerged in dialogue related to an increased likelihood to stay at BUMC and an increased desire to contribute to the institutional mission: "I can see myself in more of those roles in the future or as a resource to the leaders."

3. **Do participants feel they are able to collaborate more effectively with colleagues across disciplines, sectors and roles after participating in ACIT?**

The significance of interdisciplinary collaborations was consistently voiced by the evaluation participants. One ACIT staff member stated, "My core belief is that in medicine we learn how to take care of patients by ourselves, and yet the entire field… our research, our clinical care, our education… is about being able to accomplish transformative work in complex multidisciplinary teams. If we could get this right, that would be worth its weight in gold." The notion that both medicine and research are shifting their focus to interdisciplinary collaboration, and that this is a particular strength of BUMC that should be cultivated, was echoed by many department chairs: "The thing that stood out for me was the cross-departmental collaboration, which was very evident at the presentations. The old days of using clinical dollars to pay for research and education

are gone, so how do you make research and education sustainable? The only way to make them sustainable is to leverage resources. What I like about BUMC as a culture and about the program in general is that they really do embody this collaboration. Why reinvent the wheel? We have more of the same problems than different problems." Others elaborated on the potential for these interactions to impact faculty vitality and allegiance to the institution.

While there was general agreement that collaboration is a fundamental skill that mid-career faculty need to be successful, there were mixed opinions on how well ACIT accomplished this goal. One ACIT staff member stated, "I think some learned to collaborate more than others. If they didn't learn to collaborate, I think they learned what their weaknesses are in doing it." Another said, "We have broken down some silos. We now have surgeons from BMC working with people in BUSM and SPH. Anything we can do to break down more silos and get more teamwork across the medical campus is a win." A few department chairs believe that their participating faculty members have already benefited from skills acquired in this area: "(the ACIT participant in our department) told me several times that he was so glad his group project was with people outside of our department, because he learned so much more about how to be successful from people in other disciplines." Regardless of the degree to which new skills were acquired in this area, there appeared to be an increased commitment among the participants to actively exchange ideas about potential collaborations. One participant said, "I really valued the interdisciplinary approach. When I put together a team for

research, I'm looking for people who complement my strengths, so I feel like I'm even more aware of that now."

4. Do participants feel an enhanced ability to implement transformative work in their roles at BUMC?

The common opinion surrounding this goal was that it was the most ambitious of the program aims. One ACIT staff member commented, "I think we were able to give different people different tools which will enable them to be much more effective in impacting change around them. So if I think of transformative work as impacting change, then I think everyone got at least something that they can walk away with, whether it is negotiation skills, thinking about teams, etc. However, I think our goals were kind of lofty as far as how much of an immediate impact 16 people could have." Another staff member highlighted the influence of one's surroundings by stating, "The challenge is when you take a change person and put them in an unchanged organization. That is hard and frustrating, and that is what happened with some of these individuals. They came off-site (for the program) and then went back and their organization was the way it always was." On the other hand, the department chairs appeared to have realistic expectations for how and when this goal could be realized: "I don't expect one program to be transformational. I expect it to be helpful in giving them perspectives about the whole institution, about how they achieve their goals, and how they improve their own personal functioning to be better faculty."

However, there was also evidence that many participants have already begun taking action and/or implementing change within their own career paths. Some

department chairs stated that they could see increased strategic thinking and problem solving being exhibited by their participating faculty. This was supported by the participants, many of whom commented on how their views of themselves and their potential within the institution were changing: "I was having a hard time imagining how it would be 'transformative,' but I'm beginning to feel that my global approach to work is shifting," and "Most of all, ACIT fueled my desire to make transformative contributions, invest in people and solutions that result in returns that benefit the organization, it's members, and the populations it serves… A culture where everyone wins!"

Another area of transformation revolved around the potential for ACIT participants to mentor other mid-career and junior faculty. One department chair has asked his participating faculty member to oversee their new faculty development program, while another noted, "I think (the ACIT participant in my department) will bring an ability to help junior faculty collaborate, because she has a better view of everything that is going on in the institution, and she can be a strategic part of the department by connecting people." Similarly, several ACIT participants have been asked to mentor faculty in one of the early-career programs on campus. Another shared this example: "I coordinate a seminar for fellows from three departments, and I invited (an ACIT staff member) to do a session on conflict resolution, which I think is so important. I had to wait until mid-career to learn about this, so I wanted to let these fellows hear about it now, and maybe their lives in academic medicine will be easier for it."

B. ACIT's curricular content

The evaluation results indicate that the curriculum was viewed as comprehensive and appropriately targeted to the needs of mid-career faculty. The ACIT staff and participants reported that the core competencies accurately reflect the content that was delivered and should be at the heart of a second iteration of this program. One participant stated, "The ACIT curriculum is actually 'the Anatomy and Physiology of Running a Thriving Organization.' The curriculum presented opportunities for reflection, wellness, self-critique, and critique from other participants. It may not be able to teach emotional intelligence, but it can teach one to recognize when they are not displaying it." Another said, "The actual content was really good, and there was very little that I didn't find valuable."

Based on the responses on the Module Satisfaction Questionnaires and during the focus groups, it appears that the content met the majority of participants' needs. However, when asked specifically about content areas that could be added or enhanced, several constituencies mentioned administrative and management skills, specifically in anticipation of the potential merger between BMC and Tufts Medical Center that was recently announced (Dayal McClusky & Weisman, 2014): "The most broadly applicable thing is management. If the merger goes forward, we are going to have a great need for more people who are skilled at change management," and "BU puts people into management positions and they have no idea how to manage. And BU isn't alone." Others mentioned wanting more on mentoring, entrepreneurship, developing an international reputation, giving and receiving feedback, managing meetings, and financial

or conflict negotiation: "Playing well in the sandbox: balancing self-interest with the time and energy spent on endeavors that are seemingly for the greater good as opposed to individual advancement." Lastly, several department chairs and participants stated that they would like a future program to include more content on hospital finance and budgeting.

C. Effectiveness of Pedagogies Used

1. Didactic Sessions:

The sub-themes that emerged related to the program's didactic sessions include 1) diverse educational methods, 2) experiential learning, 3) immediate applicability, and 4) accessible language. Participants clearly preferred the sessions that used varying formats (e.g. small group work interspersed with didactic pedagogy). In addition, they were willing to do preparatory work in advance so that they could skip over the basics and use the module time more effectively by diving straight into the sophisticated content. This flipped-classroom approach was used with moderate success by a few of the program's speakers. While some were able to create an environment of focused interaction, others fell back on a less effective unstructured discussion. Journaling and videotaping were two other educational methods that were suggested.

There was also a strong preference for sessions that focused on experiential learning and interactive activities. One participant commented on the physiological and intellectual gains that occur when time spent listening is replaced by time spent moving. Others noted that a lot of ACIT felt sedentary, which contradicted the message that health

and well-being are important. To support this statement, one participant noted (in regard to the Fitbit), "My ACIT days were the days when I had the lowest step count of the whole year." ACIT staff reported that, in the future, they would provide more structured guidance to speakers to ensure that the goal of interaction was more consistently achieved, and they would allow more time for movement between and within sessions.

Similarly, participants responded well to sessions that had immediate applicability. They appreciated content that was directly relevant to their projects or their career development, and they would have liked more time at the end of the modules to think about how the practical pearls of wisdom could be directly applied to their own work. For some, the program was very successful in this regard: "What was really striking was the ability to take the actual learning material and apply it to something concrete as we went along, because we used a lot of the content and curricular material in our project." Alternatively, there appear to have been some sessions where the participants were intrigued by the content, but were unable to discern how to apply it: "For the __ session, the participants really liked that concept, but they just didn't feel like they came away knowing how to actualize it. They couldn't connect the dots." ACIT staff members concluded that this part of the program could be improved by circling back to the previous sessions at the beginning of each module in order to keep everyone accountable to the learning process: "They were inundated with content that they found to be incredibly valuable but they were so exhausted by the end of the day they couldn't pick out specific things that they could do. I would probably take out some content next time."

One area of frustration that was shared by many constituencies was the fact that the content wasn't always delivered in a language that was accessible to all participants. Several ACIT staff members and participants noted that the sessions were often dominated by hospital jargon. For participants who were primarily researchers or educators, the language used by presenters was often laced with an air of exclusivity. Furthermore, if participants didn't feel that a particular discussion or scenario was relevant to them, then it was hard to remain engaged. This frustration was appreciated by all of the ACIT staff as being particularly salient among the SPH participants.

2. Learning Communities

The perceived utility of the learning communities appears to be related to the degree of connectedness among the group members and their satisfaction with the level of facilitation provided. The majority of participants expressed that their groups could have benefited from more explicit directions and structure, particularly at the beginning, while a few noted that they preferred either a balanced or less prescriptive model. For example, one participant stated, "I viewed the learning communities as the one thing about ACIT that was unstructured. It was refreshing not to have to follow a firm structure, because sometimes we veered off, but it was always fruitful learning."

It appears that one group was able to create a focused and nurturing environment rather quickly, while the other two groups had a positive energy and camaraderie but took longer to warm up to the idea of peer-processing. The pivotal element that contributed to the success of the first group was the inclusion of self-reflection, problem-solving, and accountability. They also used current workplace challenges to guide their discussions,

thus enhancing the buy-in from all group members: "Our learning community was really the start of those collaborative discussions where we would actively bring problems to each other that had arisen in between the times we had met. We used each other quite a bit as sounding boards, and we plan to continue seeing each other in the future." ACIT staff and participants suggested other factors that could improve the effectiveness of future learning communities, such as having concrete personal development plans to keep members on task, and initiating ground rules to ensure that all members are able to speak and contribute equally.

3. Capstone Projects

Themes related to the group projects centered around 1) the selection of project ideas and project teams, 2) availability of time to complete the projects, 3) level of facilitation, 4) having realistic and relevant goals, and 5) support from and interactions with the sponsors.

Regarding the selection of projects, some participants suggested moving to a system of random assignment for project teams, as this would minimize feelings of ownership by those with expertise on the topic. They advocated for balancing the teams through other avenues (e.g. extrovert vs. introverts, researchers vs. clinicians, etc.). Others suggested having the project topics come solely from the BUMC Leaders, in order to increase motivation for all group members. In this model, each group could personalize their project by narrowing the focus and specifying the design, while still meeting the general needs of the administration. A few participants also suggested having everyone work on different facets of the same project to build more connectedness

among the larger group. For example, one participant stated, "There were people who were primarily clinicians, while others were primarily researchers, or administrators, or educators, and so people tended to make their project focused from their perspective. So I'm wondering if there could be a deliverable that actually gets used that everyone works on together, but have the administrative people work on that aspect, while the researchers work on that piece and so forth. And then we would check in and present, so that we could still learn from the other perspectives." Lastly, it was recommended that all project topics be fully vetted by the ACIT staff prior to initiation. One interviewee shared this poignant example:

> "There was a project on recruiting diverse faculty, but what I didn't realize was that a minority faculty person had already served on a university-wide committee, and Bob Brown had already said no to the report they had submitted. This new project was slightly different because it was submitted by the hospital, but it was still an awful experience. Did this show that the university and medical campus are divergent on this topic or had we just not done our homework? Having this project selected was setting the group up for cynicism."

There was also general agreement among participants and ACIT staff that it would be beneficial to carve out more time during the modules for groups to work on their projects. Several individuals voiced that it was incredibly challenging to find time outside of the program that was available to all group members. Others expressed that having reserved time at the end of each module would enhance the groups' ability to implement what they had just learned into the execution of their projects. In particular,

SPH participants felt that they were "set up to fail" since no protected time had been allocated for their efforts. Another perspective on this disconnect was expressed by one of the clinical participants: "We had two SPH people who weren't getting salary support, and I definitely felt like (the group project) wasn't on their priority list, while the two of us getting salary support felt like we should be spending X hours per week on this. So there were two of us who were drivers on this and two who were more passive."

Similarly, there was basic consensus that the project teams would have benefited from having a facilitator to help set explicit goals and timelines, observe group dynamics, create a transparent dialogue, and check in to ensure that the projects stay on track. Several also felt that this form of assistance should be mandatory: "Don't give it as an option, because some people will think that the facilitation isn't necessary when it really is."

Concerns about the relevance and feasibility of the group projects were raised by all constituencies. One ACIT staff member acknowledged, "We went into this knowing that the projects would be hard to pull off," while multiple BUMC leaders and department chairs agreed that the projects were too ambitious. In the articulate words of one participant, "If they (the BUMC leaders) couldn't solve it, then how could we?" Similarly, a department chair stated, "The part of ACIT that I thought was not realistic was the notion that these people were going to get trained up and provide something useful for their benefactors in the short term. The problems they tackled are incredibly difficult, and you aren't going to be successful at 10% time, even if every minute of that 10% is spent on the projects." In addition, many of the projects were completely

unrelated to the work of the team members, which made it challenging for them to contribute and remain invested. Lastly, the groups were working with sponsors who were high-level leaders, but they didn't always have access to the mid-level leaders who could help them understand all of the different pieces involved. As a result, some of the progress that was made by completing the projects may not be sustained. The interviewees repeatedly offered two concrete suggestions for making the projects more relevant and realistic in the future: 1) help groups narrow the focus of their projects so that they can accomplish achievable milestones within the timeframe of the program, 2) have groups select projects that are directly related to their daily work: "The projects were great, really interesting to learn the process, but if we could have instead taken some of what we learned and applied it to our 'every day,' it would have enhanced our own learning and also the institution." On a positive note, one department chair noted that "the group projects were so much more about the process, the journey of working with a group on a common goal."

Another common theme surrounded the support from and interactions with the project sponsors, with the majority of participants expressing frustration with the sponsors' poor attendance at the project presentations. In addition, they were disheartened by the fact that, in most cases, there was no formal plan from the institution for moving the projects forward. In the words of one participant, "I was disappointed with the lack of response when we were actually presenting the projects, because all along that was the bedrock in all this. They vetted these projects. They were things they were interested in. It was why they funded the program." This point is well articulated by

another participant, who said "If the projects are going to stay, then the sponsors need to make sure that resources and people are made available to send the message that this is a priority for the institution, not just a priority for this group, because without that, then the odds of these projects continuing after the program is over just seem impossible."

In response, many of the participants suggested integrating more requirements for meetings between project teams and their sponsors throughout the duration of the program. This would ensure that the deliverables are meeting the expectations of both parties, allow for brainstorming when barriers arise, and help maintain momentum. In addition, debriefing sessions at the conclusion of the program would create the space for a formal discussion of "next steps." This idea appears to be supported by the BUMC leaders, one of whom said, "I would be interested in hearing how people felt about the practical experience and how their projects actually impacted care or impacted the problem they were trying to address. And that is on the hospital to make sure that happens." However, instituting these changes would require a more thorough vetting process to ensure that the selected sponsors are committed to providing guidance on future projects. Without this type of continuous dialogue and direct feedback from the sponsors, the groups and the ACIT staff are unable to determine whether the projects were successful in meeting institutional needs.

4. Cohesion of the Program

Although the didactic session, learning communities, and capstone projects were designed to unfold in a cohesive manner, the ACIT staff agreed that they would like for future programs to connect these elements in a more deliberate way. One staff member

summarized this sentiment with "I finished the program feeling like there was a lot of information floating out there, but it wasn't that easy to tie it all back together. In the future, we would think more about how to strike the right balance between focusing on content and giving people a chance to reflect on what is happening in their lives." In addition, ACIT staff reported that each module felt like a silo, and that check-ins or journaling between modules could enhance the overall impact of the curriculum. In addition, they would suggest reserving time at the beginning of each module for participants to share how they have been incorporating the previously learned material, and providing time at the end of each module to brainstorm about concrete ways they can apply the didactic content to their group projects and their daily work. These self-reflective exercises were included in the Module Satisfaction Questionnaires, but they were not revisited through group discussion, which might have improved accountability. The importance of closing the loop was echoed by several participants, one of whom said, "The skills that I felt most helped by were the interpersonal ones… negotiation, being a leader, handling difficult people. If those had been more tied to what was going on in our jobs outside of ACIT, that would have been great. They could have said, 'Take this skill and try it on something that isn't going well in your work life, then come back and let us know how it went.'"

In addition, the staff commented that it would be helpful in the future to start each module with a picture or diagram representing the program's overarching goals on which they could indicate where they were on the continuum. This would provide a coherent and logical visual to help everyone stay connected. Other suggestions included 1)

synthesizing the results of the participants' 360s to select content to meet the group's specific needs, 2) selecting more core faculty who are committed to presenting in multiple modalities throughout the program, 3) limiting didactic sessions to the morning and reserving the afternoons for group work, and 4) assigning a coach to each participant to meet monthly for sessions aimed at deeper self-reflection and development.

ACIT participants shared similar opinions about the program's cohesion. One explained that, just as they began the program by stating why they were participating, it could also be helpful to spend some time in the later modules expressing how they plan to use their new skills in the future. Another suggested that future programs could begin by asking participants what they hoped to accomplish during the year and then have each person create a roadmap with milestones. Several also indicated that having individuals and groups report back on their progress with personal and project goals, respectively, would be enlightening. The audience might hear about approaches that they may not yet have considered.

While it appears that there are small changes that could improve the program's cohesion in the future, it is also clear that several participants were still able to weave it all together. Evidence of this accomplishment is captured in one participant's words: "We tried to bring in all the (skills they were teaching), because we really cared, and we did our homework because we were really trying to succeed. Our whole group is hoping to continue with our project if we get buy-in, and we are going to keep banging on the door before we give up."

D. Impact of ACIT on the Participants' Work

The participants and department chairs commented on several concrete ways that they can see ACIT's impact on the participants' work. Several participants reported feeling more energized, positive, empowered, and focused as a result of their participation in ACIT: "From the time I applied to the present, there is no doubt that I am more enthusiastic and have restored optimism, and I bet that permeates my work." Another said, "I think it has changed my attitude. I think I'm more motivated and less dissatisfied with my position here than I was previously, just because I went through this program."

There have also been gains in knowledge and confidence regarding the core competencies of the program. For example, one department chair stated, "I have seen some growth in the effectiveness of her communication. There has also been more energy in her presentations." A participant also noted changes related to conflict resolution: "I am able to communicate even negative or difficult messages without creating conflict or destroying trust. I employ my communication skills to create an environment where everyone feels safe to express ideas, opinions, and feelings, or plan and problem-solve in creative ways." Emotional intelligence was also highlighted: "The other thing that I gained was a better appreciation for EQ. It's not just how many IQ points you are born with but also how you learn to navigate the environment and how to get done what needs to be done despite road blocks along the way." Furthermore, several participants commented on global improvement of their leadership skills, their ability to articulate a vision, and their appreciation of acknowledging others' accomplishments. Several

indicated that their increased confidence has encouraged them to pursue new leadership opportunities and to move forward in areas where they had previously been indecisive.

Participants also reported taking on roles as liaisons between other faculty and institutional leaders. They remarked that their new proficiency with administrative and managerial language enabled them to help their colleagues understand changes occurring at BUMC by providing context. Conversely, they have also been able to share the opinions and perspectives of their colleagues with the BUMC leaders, and they are optimistic that increased engagement will help negate the common concern among faculty and staff that decisions are only made in a top-down approach.

Lastly, both department chairs and participants commented on the potential for, and evidence suggesting, increased productivity as a result of the ACIT program. One chair noted, "She is primarily a clinician, and I can see her further developing clinical operations here… not necessarily volume, but perhaps the efficiency of our clinical operations." Two participants stated that they have saved time by helping clarify information to avoid conflicts and misunderstandings. Another participant indicated that one of the program's pearls of wisdom was to "take time for myself to improve my overall happiness and productivity."

E. Impact of ACIT on the Institution

1. Did the program increase the size and diversity of the faculty pool from which institutional leaders can be selected?

Representatives from all constituencies noted that one of ACIT's primary strengths was identifying and nurturing potential leaders from diverse backgrounds. The importance of this goal was highlighted by a department chair, who stated, "One of the things I feel very strongly about is that we don't have enough faculty in leadership positions who are good at it and like it and seek it out for all the right reasons." There also appears to be general consensus that participants were provided with tangible cross-disciplinary skills that will allow them to be leaders outside of their departments. It is yet to be seen whether some of these individuals will be promoted into leadership roles; however, it should also be noted that this program was not intended to be a leadership program and that, in fact, there are only a finite number of leadership positions on campus. One of the BUMC leaders remarked, "Not everyone who goes through a program like this is going to get promoted or get a new job, so managing that expectation is something that I think we need to be very careful about. The success of the program shouldn't be measured that way." Representing an alternative perspective, one participant stated, "This program has incredible potential to actually transform and create new people out of the participants. Each person has different goals, and now they can see themselves in new roles, and I just want to make sure that (the BUMC Leaders) are ready to take it to the next level by helping people actualize these goals."

Therefore, it appears that all parties carry high expectations for both individual and institutional outcomes. In order to maximize this potential, it may be helpful to provide a feedback loop to department chairs, one of whom noted, "I would love to have Robina and Emelia say, 'We'd like to talk about (the ACIT participant in my department) and what we recognized as her strengths.' They would have to all be comfortable with that, but I would love to hear more about the accomplishments and the skill building." One of the ACIT staff members elaborated on this strategy by explaining that these debriefing sessions would enable the department chairs to be clear on what competencies have been covered and accomplished to date so that they can help participants maintain momentum moving forward.

2. Did the program impact retention?

The answer to this question can best be summarized by the following quote from an ACIT staff member: "One person who I debriefed said in a very modest way, 'If you keep me for one more year, you are going to make the money back that was required to fund ACIT.' And others with big grants, they could take their grants elsewhere. (The BUMC leaders) should be looking at this program as a retention strategy." In support, many participants stated that, at this time, they are more likely to stay at BUMC because the institution invested in their development. One participant illustrated the significance of this by stating, "Too many of the people in my section who have departed have done so because of burnout, not because they got a much better job. The majority of mid-career faculty who left got burnt out and started looking for something new, and they could have had that same kind of rejuvenation internal to the institution, just like what

I've gotten from ACIT. And I HAVE been one of those people who was looking elsewhere, but I'm not currently because I plan to stay here, partly because of this program." Given the potential hospital merger on the horizon, several interviewees also noted that BMC has a fundamental employee engagement problem on their hands, and that retention strategies should be at the forefront of the leaders' minds: "When you have this kind of problem that has reached epic proportions…if the faculty encounter uncertainty, who is jumping off the boat first? Invariably, when you have defections, the hardiest leave first."

3. What impact could ACIT have on additional faculty?

Department chairs were unanimous in their support for continuation of programs like ACIT, which is illustrated by the following quotes: "We have a large faculty, and they are all here at a medical school because they want to do something different than just practice. How do they gain those skills?" and "There are a lot of people looking to expand their careers in some way. These people definitely want more development and ask for it all the time." This sentiment was poignantly summarized by another chair, who said, "This type of faculty development is a need that just can't be saturated." ACIT participants echoed this opinion by stating that they have a lot of junior colleagues who are climbing the ranks and could benefit from something similar. A related perspective was shared by an ACIT staff member, who said, "Most faculty are pretty great, and if you give them the time and space for this sort of thing, they will all shine in different ways. This year's group was exceptional. They were 110% committed, really engaged,

accountable to each other, and grateful for the experience. I think that would be the same for most cohorts."

While ACIT undoubtedly made a positive impact on the inaugural cohort, there are clearly many other faculty at BUMC who are also in need of development. This invites the question of whether there are additional areas of faculty development that should be addressed in order to better meet institutional needs. A variety of ideas and perspectives on this theme where shared during the evaluation. There was general agreement that no single program will meet the needs of all faculty; therefore, a successful institution will provide a menu of opportunities.

In turn, several department chairs suggested having ACIT reserved for those with the most evident leadership potential, while developing a broader curriculum for the remaining mid-career faculty. For example, the importance of attending to faculty who are performing at the 50-75%ile was expressed by both department chairs and ACIT staff: "There are some out there who are great, but just struggling and need help getting over a hurdle. We shouldn't forget them," and "If you take mediocre faculty and bring them up 25%, it is probably more valuable than giving 3% to someone at the top." In addition, one participant indicated that they would love to see the program adapted to meet the needs of senior faculty as well. Representing another perspective, an ACIT staff member suggested that a similar program could be "focused on the most vulnerable groups of faculty, such as women and under-represented minorities. I think that could be incredibly impactful on one of the big BU/BUMC strategic goals, which is to increase diversity."

4. What are the long-term implications of having a program like ACIT?

The evaluation results suggest that ACIT has the potential to make a lasting impact on several facets of BUMC. First of all, several interviewees stated that custom-made programs like ACIT have much more potential to generate cohort and institutional connections than external programs like the Harvard Macy Programs. One chair commented on this strength by saying "ACIT builds a larger social network and a larger intellectual network. We are such a big organization, but we are so siloed. What ACIT does is build community. It may or may not equip people to be better negotiators or give better talks, but I think without exception the participants come out more connected."

In addition, the 2014 AAMC Faculty Forward survey results indicate that BUSM has room for improvement in supporting a culture of innovation, useful and timely feedback, clarity in promotion criteria, appropriate pace of professional advancement, and faculty retention. Several interviewees noted that all of these areas are addressed either directly or indirectly through ACIT and would not be feasible outcomes from an external faculty development program. In addition, department chairs commented on having a limited number of resources available for faculty development. Therefore, "having a robust set of faculty development offerings that are centrally-run and institutionally-based is really important." There was also a general consensus among chairs and BUMC leaders that having a core group of faculty who become more fulfilled, content, and productive will lead to stronger departments and more satisfied students, residents, and patients.

The presence of ACIT also has the potential to impact institutional culture.

Several interviewees commented on the fact that BUMC is an extreme outlier in its lack

of campus-wide resources or decanal positions dedicated to faculty development. In

comparing BUMC to other organizations, one department chair stated, "What high-

performing organization doesn't invest in its employees' development? It's not rocket

science. If we were a business, we wouldn't even be having this conversation. We would

take part of our budget and say, "We have to invest this in our employees' development."

Others noted that not continuing ACIT could be worse than never having it in the first

place, as that could send the disheartening message that external leaders (ACE/Sloan

Foundation) think that these efforts are worth funding but our own leaders do not. This

frustration was also voiced by a referent: "I see great potential in this community.

However, there are two fundamental cultural flaws: at the leadership level, there is not

enough effort to invest in faculty development/support/resources, and at the faculty level

there is a sense of "inferior" related in part to this. Both need to change, as they are inter-

related. Without these changes, I am concerned that we would see faculty attrition,

which would include me and my colleagues in other areas."

Several interviewees also noted that programs like ACIT should be looked at as

long-term investments. Various chairs and ACIT staff members referred to the ACIT

participants as "treasures" and emphasized the importance of giving them time to put

their new skills and knowledge to use. One chair stated, "We have to get clear-eyed about

the fact that we have really talented people, and if we trust them and invest in them, then

they will really soar. And if we don't invest in them, then we've wasted human capital in

a way that is unconscionable." Others encouraged BUMC leaders to look at the

opportunity costs rather than the actual costs, as the payback of ACIT is likely 3-5 years: "There has to be faith among the benefactors that investing in people and equipping them to do their work better, giving them opportunities to reflect and think critically about their capacities, teaching them new skills, and giving them the experience of seeing the institution investing in them… it will eventually pay off." In addition, there is general consensus that additional iterations should be undertaken before a final judgment is rendered so that results of this evaluation can be incorporated into the program's design and execution.

5. **General Conclusions from Participants:**

In closing, participants repeatedly remarked that ACIT was extremely educational and motivating, that they felt a renewed energy and commitment to the BUMC mission, that the program should be continued, and that they believe it will ultimately impact faculty retention and the leadership pipeline. Several also commented on the fact that the knowledge and skills they gained through ACIT will enable them to provide better mentoring, and to generate ideas to increase departmental efficiency, productivity, and satisfaction. Additional conclusions focused on the institutional payoff that will come from creating the space for interdisciplinary connections to be made, and the inability to put a price tag on the program's impact. The following quotes provide additional support for the participants' overarching assessment of ACIT's ability to impact faculty and institutional vitality:

- "ACIT is a potential mine for identifying, growing, developing, and retaining BUMC talent. The program can evolve to the level of the BU School of

Management's Executive program, which has a national reputation. This is not hyperbole; this can actually happen."

- "From the very first day, the combination of thoughtful high-impact curricular programming and the engagement of my peers in the program made the experience completely worthwhile and transformative."

- "Midcareer faculty are the backbone of a successful academic medical center, but, especially in the changing climate of healthcare, often feel overworked and under-mentored. The ACIT program gives us space to step back, evaluate where we are going, and devote ourselves to our jobs with a renewed sense of purpose."

- "It has become clear to me, as a result of this program, that simply doing the same things I did to advance in my career 5-10 years ago will not suffice for the next step, and that peer mentorship, innovative thinking, and introspection are key. I do not think I would have figured these things out without the experience of the ACIT program. Having a program like this is important for the institution to be able to retain and sustain a valuable resource - experienced, bright, mature faculty with many remaining years of productivity and ability to contribute."

- "I firmly believe that as more faculty participate in the ACIT program we will see improvement in retention and professional satisfaction among faculty at BUSM. I also believe that we will see improvements in the quality of teaching of our medical students and residents, improved scientific collaboration between departments, and improved camaraderie amongst the faculty across the institution."

- "For me, this program has taken me from a fairly discouraged mid-career faculty member who was seriously considering leaving the institution, to a newly energized leader with many new and valuable contacts across campus and a thirst for being involved in medical campus leadership at a more significant level. I would say this program is the most significant positive experience I have had here. I would be happy to contribute in any way I can to see it continue for another year."

Supplemental Data

360-degree Evaluations: Because the ACIT participants will not complete the second round of 360-degree evaluations until June 2015, we are unable to incorporate comparison data for the purposes of this dissertation. However, those data may be utilized in future publications.

Fitbit: The data that were generated from the Fitbits was not adequate to be thoughtfully incorporated into this analysis. Shortly after ACIT began, there was a recall of the Fitbit due to reports of a rash being caused by the arm band. Therefore, all participants and referents were notified and given the option of discontinuing its use, which resulted in a few participants/referents opting out early on. In addition, several others encountered problems with the data syncing correctly with their computers. Due to these problems with the product, usage data were received from less than 50% of potential participants each week. Therefore, the evaluation team did not feel that the data would produce reliable or valid results.

Dissemination of Results

In April 2015, a formal interim report will be disseminated to the BUMC leadership in order to assist in their decision-making regarding funding for the 2016-2017 fiscal year. This written report will be initially provided to representatives from the other three constituencies (ACIT staff, ACIT participants, and department chairs) as a "member check" to elicit feedback for a more comprehensive and accurate report. Once data analysis is complete in summer 2015, a final report will be issued to all stakeholders.

CHAPTER SIX: Discussion

Participants vs. Referents

  The pre-intervention comparisons indicate that the ACIT participants and referents were fairly well matched and that both groups were representative of the general BUSM faculty. However, there were a few notable differences. First, the only pre-intervention differences pointed to the referents having higher levels of self-confidence in certain abilities (e.g. identifying their strengths and weaknesses, negotiating and resolving conflict, and understanding the impact of disruptive innovation). This finding may suggest that the participants were particularly skilled at recognizing their own deficits and their need for faculty development, thus making them ideal candidates for the ACIT program. Furthermore, vital faculty members have been shown to "grow personally and professionally throughout the academic career, continually pursuing expanded interests and acquiring new skills and knowledge" (Baldwin, 1990, p. 180). They are organized and open-minded in their intentional pursuit of new challenges to address and new collaborations to form (Baldwin, 1990). Therefore, it appears that the inaugural cohort was well-suited for the ACIT program.

  Similarly, results from the Connectivity Scale indicate that the participants had less agreement than the referents with several statements describing the BUMC community. These included the ability of the members to solve problems, the community's ability to meet its member's needs, shared values among members, and hope for the community's future. These statements suggest a level of communal

dissatisfaction among participants that could have led to apathy and departure, but instead led to a desire to change things for the better from the inside. This optimistic, empowered attitude is precisely what an institution should want in its next generation of leadership. These findings highlight a fundamental principle in faculty development: participants must need and want the development in order for it to be effective (Belker, 1985).

For the reasons why BUMC faculty have chosen to stay at the institution, the only difference between groups was that position, rank, and responsibility appear to carry more weight for the participants compared to the referents. This finding lends itself to two hypotheses: 1) If the participants were dissatisfied with their rank and were thus pursuing this program primarily to increase the likelihood of promotion, we would have expected the opposite trend for this item. Instead, since many ACIT participants intend to stay at the institution, they may feel so invested in their position and rank that they are motivated to seek out development opportunities in order to increase their own satisfaction and vitality. 2) The participants' perceived level of responsibility may be causing them to feel accountable to others around them (e.g. their colleagues, direct reports, patients, and students), and thus inspired to make BUMC a better place for all parties. It has been shown that faculty with the highest vitality are the ones most likely to pursue faculty development (Baldwin, 1990). This ability to pursue development for the greater good of the institution is another quality that would make these participants well-suited for leadership positions. This also bodes well for the future of ACIT, as Romano et al. (2004) found that having an enthusiastic group to serve as the original cohort in a mid-

career faculty development program can help lay the foundation for a sustainable, successful initiative.

Program Outcomes

The post-intervention results indicate that there were indisputable gains made by the participants over the course of the nine-month program. These gains included progress in establishing a career plan, recognizing and meeting the needs of stakeholders, understanding when, where, and how to spend resources, communicating effectively with colleagues, negotiating and resolving conflict, understanding disruptive innovation, leading in times of uncertainty, creating an innovative culture, and eliciting feedback from and providing feedback to colleagues. Since the referents did not experience the same significant changes, we can infer that the program deserves credit for these gains. Another noteworthy post-intervention finding is that the participants' ended the program with a significantly increased total sense of community and (in comparison to the referents) a substantial change in their belief that BUMC is meeting their needs and that they can trust people in this community. Lastly, the overall satisfaction of the ACIT participants with their faculty careers at BUMC increased significantly over the duration of the program, while no change was noted for the referents. This finding is meaningful due to the associations between connectivity, satisfaction, and vitality, the latter of which has been positively correlated with faculty retention (Baldwin, 1990). According to one department chair, this is exactly the type of faculty retention that BUMC is looking for: "I'd like to have as much retention as we can of good people who are growing and

choosing to stay here because of the sense of possibility they have in the department and the organization."

The only result that may suggest decreased connectivity for the participants is the fact that being a member of this community appears to be a smaller part of their identity compared to the referents. However, results also show that the participants' now have an enhanced belief that BUSM/SPH/BMC cares about them and that they are receiving support for their progress and performance. Therefore, while the institution may not be a large part of the participants' identities, they are still appreciative of the care and guidance that the campus provides. Considering the absence of tenure at BUSM and the 2014 AAMC Faculty Forward survey results suggesting a lack of clarity in promotion criteria and an unsatisfactory pace of professional advancement, it is imperative that more faculty feel supported in their progress.

The high ratings on the module satisfaction questionnaires and the supporting feedback from the focus groups suggest that ACIT's content was pertinent, well-received, and effective. The program was undoubtedly successful at generating a powerful cohort effect and enabling participants to self-reflect and think deeply about their career goals. ACIT's other two primary goals were to enhance participants' capacity for interdisciplinary collaboration and transformative work. In both cases, it is difficult to gauge the program's true effectiveness at this early juncture, because accomplishing these goals at the individual, departmental, or institutional level simply takes time. Furthermore, it would be inappropriate to measure the success of these goals with traditional metrics. Therefore, while it is premature to say whether ACIT's focus on

collaboration and transformation will impact BUMC's most pressing challenges, it can be said with confidence that some of the institution's most capable faculty have a volume of leadership skills, including emotional intelligence and institutional savvy, which they didn't have before. In addition, department chairs and participants are already seeing a tangible impact on the participants' work.

However, these gains cannot be taken for granted and will need to be consistently reinforced (Daley et al., 2008). In the words of a participant, "Who is going to help me stay on track, make sure that I don't lose that momentum now that I've had some clarity over the last nine months about what is possible for me to accomplish?" Once the participants have completed their second 360-degree evaluation in summer 2015, there is no formal mechanism in place to ensure that they receive the support and encouragement they need to maintain momentum. Nonetheless, it is quite possible that the strong relationships within the participant cohort will provide a solid basis for long-term peer mentoring.

The merit of ACIT can also be judged by comparing it to literature on effective faculty development programs. For example, work by Baldwin and Chang (2006) indicated that a comprehensive mid-career program should focus on three primary goals (career reflection and assessment, career planning, and career action / implementation) that are grounded in collegial support (e.g. mentoring, networking, and collaborating), resources (e.g. information, time, funding, and space), and reinforcement (e.g. recognition and rewards). Similarly, Steinert's 2006 meta-analysis found that the program characteristics most commonly associated with positive changes in attitude, increased

knowledge, and gains in teaching skills were experiential learning, diverse instructional methods, nurturing of peer relationships, and provision of feedback. Lastly, McLean et al. (2008) attributed the success of their faculty development program in academic medicine to their emphasis on experiential learning, multidisciplinary projects, and reflection activities. When considering these criteria, it is evident that ACIT's design was well-informed and based on best practices. Therefore, the inclusion of experiential learning, multidisciplinary projects, and reflection enhances the validity of the positive outcomes noted above.

Meeting the Needs of all Participants

When taken together, the evaluation results support the general conclusion that ACIT was largely successful in accomplishing its goals. However, there were several points related to the participants from the School of Public Health that warrant discussion. The most obvious factor that set them apart from the clinical participants was the absence of protected time, which became a source of tension for some. In turn, this discrepancy may have made them feel less supported by their school and/or institution, which may ultimately decrease their likelihood of staying at BUMC. However, the SPH faculty acknowledged that their participation was voluntary and that they signed on because they felt the benefits would outweigh the time constraints.

Some participants thought that the lack of allocated time also hindered the SPH faculty from being able to prioritize the projects as much as they might have otherwise. This led some clinical participants to feel like they carried the weight of the projects

and/or that they missed out on getting to know their SPH counterparts. Paradoxically, it also meant that it was hard for the groups to maximize one of the greatest strengths of the SPH participants: their ability to execute interdisciplinary group work. In the words of one participant, "It would have been nice to get to know the SPH folks better. However, I learned that projects are what they do every day, so the group project wasn't as much of a learning experience for them as it was a teaching experience benefitting me. They are just so good with those things."

The program's content, at least superficially, led to a second disconnect for the SPH faculty in that certain sessions appeared more geared toward the clinical participants. The SPH faculty acknowledged that several of the program's pearls of wisdom could certainly be applied to researchers, but they felt that the program was missing the one area of focus that would have fully met their needs: grant funding. And in order to truly expand the horizons of the SPH faculty, the program would have needed discussions of and with external funding agencies. One of the ACIT staff members noted, "In order for the SPH faculty to enhance their ability to implement transformative work, they would have needed more support and guidance on how to collaborate to secure more grant funding. An ideal (faculty development) program would be one where the result, the outcome, is the submission of a multi-school, multi-disciplinary grant submission, where the participants had guidance and mentorship throughout the program that would lead to successful submissions. That is what would best serve the institution and the SPH faculty." However, the historic sticking point for this type of interdisciplinary collaboration at BUMC has been the lack of agreement on what to do with indirect costs,

and this was not a challenge that the ACIT program would have the authority to tackle.

Another distinction between the public health faculty and the clinical faculty was related to professional culture. The stereotypical work of an SPH faculty member is represented by flexible hours and interdisciplinary collaboration, while many clinical faculty work long hours often in silos (Cropsey et al., 2008). Moreover, some of the modules appeared to be biased in favor of the clinicians, based either on the representatives speaking, the topics being covered, and/or the language being used. This left some of the SPH participants feeling disenfranchised. Lastly, multiple interviewees mentioned subtle behavioral distinctions between the faculty from SPH and BMC/BUSM that surfaced throughout ACIT. Failing to recognize and/or discuss these differences at the beginning of the program may have been a missed opportunity. On the other hand, the decision to focus on similarities among participants, rather than differences, is another strategy with great potential. It is challenging to know precisely where to land on this dilemma.

One potential solution to address these discrepancies would be to redesign the program to include a shorter curriculum that is applicable to all faculty, regardless of one's school or job description, followed by break-out sessions organized by the faculty's primary area of focus (e.g. clinical, administrative, research, and teaching). However, accommodations would still need to be made for individuals whose positions are split between multiple domains. Regardless, if future iterations of ACIT include faculty from the dental school and/or basic-science departments, then inclusivity will become even more essential. On a positive note, the inherent risks that come with a dichotomous

majority-minority environment would likely be minimized with the addition of more sub-groups.

Sustainability and Scalability

Results from the interviews and focus groups show substantial evidence that all constituencies are aware of the unique challenges facing mid-career faculty. In addition, there was a broad understanding of the multiple factors impacting faculty vitality, including one's sense of purpose, available resources, opportunities for growth and collaboration, sense of community, guidance from mentors, work-life integration, positive reinforcement, and institutional culture. With such a complex array of contributing factors, the BUMC institutional leaders must decide whether a small program like ACIT is the best way to spend their faculty development dollars. In the words of one BUMC leader, "Couldn't we do something less deep for more people to lift the boat?" BUSM currently has approximately 5% turnover of faculty per year (approximately 60 out of 1,200 faculty). Thus, one could argue that an effective menu of programs would target at least 60 faculty at an acceptable cost.

To provide context for the question of sustainability and scalability, we must consider the financial foundation upon which ACIT was established. A grant from ACE / Sloan Foundation covered ~$122,000 of administrative costs for the pilot year of ACIT, including .15 FTE and .4 FTE of salary support for the Faculty Director and Course Administrator, as well as funding for meals, supplies, and speaker honoraria. In addition, BMC and the FPF (Faculty Practice Foundation) in essence provided ~$210,000 since the

clinical departments agreed to provide .1 FTE of protected time for their participating

faculty members. At this time, it has not been determined whether the hospital would

provide similar support for additional faculty to attend the program and/or whether the

BUMC Provost and/or the Department of Medicine would be willing to cover the

remaining costs.

In order to provide the BUMC leadership with a comprehensive evaluation of

ACIT, it may be helpful to perform a cursory cost-benefit analysis comparing ACIT to

alternative programs. In turn, here are the benefits and limitations of three other strategies

that may be considered:

1) BUSM's Department of Medicine Faculty Development Workshops: 1-2 hour

   workshops focused on skills such as organizational culture, negotiation,

   managing conflict, and financial acumen: These workshops are often attended

   by approximately 60 faculty members. Benefits: small commitment of faculty

   time; low cost; easily scalable to reach more faculty. Limitations: no capacity

   for collaboration, networking, or high impact outcomes.

2) BU School of Management's Emerging Leaders Program: This course costs

   ~$1000/person and typically includes 30 assistant professors. Benefits: in-

   depth skill building for participants; moderate cost. Limitations: short term, so

   it does not build a cohort or sense of community; not linked to the medical

   campus.

3) External leadership programs (e.g. programs offered through Harvard Medical

   School, Harvard School of Public Health, Harvard Macy Institute, Brigham

and Women's Hospital, and the AAMC): The majority of these programs are

5-10 days total, either consecutive or spread out over a year. Tuition ranges

from $2,000-10,000 per person. Benefits: well-regarded programs with clear

indicators of alumni success. Limitations: significant external costs; less likely

to create a BUMC cohort or sense of community since very few BUMC

faculty involved in any one program; not designed to meet the specific needs

of BU/BUMC, therefore, less likely to impact retention.

However, no cost-benefit analysis can accurately account for the significant

financial burden incurred by an institution when medical faculty depart, with attrition

figures between $100,000 to $600,000 per person (Schloss et al., 2009). Given the results

of the 2014 AAMC Faculty Forward Survey and the potential merger with Tufts Medical

Center, this is a critical time for BUMC to be investing in faculty development as an

enduring retention strategy. Furthermore, with attrition rates being especially high among

women and under-represented minorities (AAMC, 2008) and the fact that one of

BUMC's strategic goals is to increase diversity, the BUMC leaders would be remiss to

decide the fate of ACIT based on cost alone.

General Recommendations

Throughout this program evaluation, the ACIT staff and sponsors made it clear

that the program was designed to have an experimental quality rather than to be the

regurgitation of a well-worn model. In turn, they took chances with some components,

and as expected these decisions were met with mixed, albeit mostly positive, results. In

conclusion, here are a few recommendations regarding some of ACIT's most innovative

elements:

- The protected time was critical for some, but not for others. Recommendation:

  Redesign the program for 20-25 people with enough scholarship funding to

  provide up to 5% of protected time (Romano et al., 2004), while continuing to

  provide the menu of less-intensive development opportunities currently utilized

  by approximately 250 faculty each year. Given the strong sense of social justice

  throughout BUMC, it is possible that this type of as-needed funding system that

  benefits the common good would be acceptable to future ACIT applicants.

- The primary ACIT staff members are ideally suited for their roles, as they set high

  expectations for the program and the participants (McLean et al., 2008). Their

  commitment and finesse planted the seeds for connectivity and buy-in among all

  parties. Recommendation: retain the program organizers.

- The off-site location and two-day sessions were essential to maximize participant

  engagement. However, the long days sent a conflicting message about work-life

  integration. Recommendation: Keep the program off-site and maintain

  consecutive two-day modules, but shorten the schedule to 9:00am-5:00pm.

- Although there were suggestions for additional topic areas that could be added,

  there was greater support for curtailing the content to allow more time for

  processing and application. Recommendations: Retain the content areas that

  received the highest ratings and integrate those speakers into the core faculty to

  create more continuity. Ensure that core faculty are committed to 1) using

interactive activities that will focus on experiential learning and allow for movement throughout the day and 2) making the language and material relevant to participants from all schools and backgrounds. If necessary, incorporate break-out sessions to allow sub-groups to work together (e.g. clinicians, administrators, researchers, and teachers). Reserve time at the beginning and end of each module to discuss the participants' practical applications of the material (Carroll, 1993).

- The capstone projects were ambitious, difficult to coordinate, and not well supported by sponsors. Recommendations: Either 1) chose one project with a committed sponsor and let individuals or groups tackle different aspects of the project or 2) let participants chose a project where they can apply the content to their pre-existing work and responsibilities. Build the group-work time into the program. Employ facilitators to assist in successfully launching the project(s) and helping groups stay on track. Require regular meetings with the sponsor(s) during and at the completion of the program. Conclude with a formal agreement between group members and sponsor(s) about the "next steps" for the project. Given the importance of institutional culture to the success of faculty development initiatives (Laursen & Rocque, 2009), a true partnership between the participants and leaders would set a valuable precedent for future cohorts.

- The learning communities' camaraderie was appreciated by all, but their utility and effectiveness were mixed. Recommendation: Keep the learning communities, but have group members set ground rules and expectations at the beginning and schedule regular check-ins with facilitators. Ensure that participants' career goals

are congruent with their values (Banks, 2012), and then use their personal

development plans to provide structure and accountability to the learning

communities. Consider having members of the original cohort return to speak

with the next cohort about how to maximize the effectiveness of the groups.

- The longitudinal design was key to creating the cohort effect and increasing

  connectivity to the institution. However, the program lacked the robust level of

  cohesion that was desired. Recommendation: Maintain the longitudinal design,

  but be more intentional about interlacing the content and bridging the modules in

  order to connect the various components (Garet et al., 2001).

- ACIT's long-term impact on the participants and the institution would be greatly

  enhanced by a self-sustaining peer coaching or mentoring system, which has also

  been shown to improve recruitment efforts and increase retention (Heinrich and

  Oberleitner, 2012). Recommendations: Formally integrate mentor training and

  peer coaching into the program or provide supplemental training to interested

  participants. Provide feedback to department chairs so that the strengths of their

  participating faculty members can be utilized most effectively by mentoring

  colleagues and serving as liaisons to the institutional leaders.

Limitations

The major threat to this study's validity was researcher bias due to the affiliation

of the primary evaluator with the BUMC campus. However, she continually sought the

stakeholders' input on the evaluation process itself in order to enhance her capacity for

impartial reporting. In addition, she maintained an audit trail of all the pertinent details of the evaluation process to illustrate how the design and hypotheses emerged and how her experiences and preferences may have contributed to that progression. In an effort to further enhance credibility and validity, the evaluator's dissertation advisor, an experienced external evaluator, was involved in the design phase of the evaluation and reviewed all drafts of the evaluation report.

There were also several minor threats to validity that were accounted for during the design phase of the evaluation. For example, there was the potential for maturation (e.g. did changes in knowledge, skills, attitudes, or connectivity occur due to normal developmental processes and/or other exposures?), which is an inherent risk for any longitudinal intervention. However, the inclusion of a reference group protected against this threat. It is also possible that members of either group may have wanted the program to succeed or fail, which could have led to design contamination. This threat was minimized by the fact that only one of the referents was originally an applicant to the program. Furthermore, although the control group was equivalent to the treatment group in regard to several academic factors, the referents may not have been equivalent to the participants in their knowledge, skills, attitudes, or connectivity, which may have influenced the power of the data. However, the fact that there were very few pre-intervention item scores that were significantly different between the two groups indicates that this threat was not realized. Lastly, using self-reported data from a modest size cohort being evaluated with multiple instruments has the potential to inflate positive outcomes of the program. In addition, the level of statistical significance did not account

for multiple testing. In order to mitigate this risk, we attempted to corroborate or dispute

the data through the focus groups and interviews with department chairs, BUMC

leadership, and ACIT staff.

The Hawthorne effect may have also played a role in multiple outcome measures.

For instance, did participants alter their behavior as a result of being part of the study?

Similarly, will respondents of the 360-degree evaluations report changes because they

know the participants have completed a professional development program? We

attempted to control for this risk by omitting the connection between the 360-degree

evaluations and the ACIT program when inviting potential respondents to participate.

However, it was impossible to prevent supervisors, direct reports, or colleagues from

hearing about this relationship through other channels. We also acknowledge that

wearing a Fitbit most certainly made participants and controls more aware of their level

of fitness, which may have triggered more exercise and a greater sense of well-being. We

would not have been able to determine whether increased exercise was the result of the

Fitbit or other aspects of the program; however, if sufficient data had been available for

analysis, we would have compared the participants' exercise levels and patterns over the

nine month period to those of the referents as a measure of control.

A final limitation worth noting is the relatively small size of the data sets based on

the number of completed surveys. We can only theorize that the timing of the post-

intervention instruments (during the December holidays and at the end of an academic

semester) may be responsible for the drop off in participation from both participants and

referents. However, given the anonymous nature of the surveys, we are unable to search

for patterns among the non-responders to discern whether they may be systematically different from the responders. Regardless, the validity of the results was enhanced by using both parametric and non-parametric tests and only labeling results as statistically significant if they had p-values ≤ .05 in both analyses.

The evaluation of ACIT was also intentionally limited in scope, as it was not designed to assess faculty development at large throughout BUMC. In addition, the results are bound to the setting and context of the study, and thus the conclusions may not be generalizable to other institutions. However, the recommendations may be of value to other medical campuses that are interested in creating development opportunities specifically for their mid-career faculty.

Future Directions

The words below highlight the importance of *training the trainer*, since many generations of students, patients, and colleagues will be influenced by the knowledge, skills, attitudes, and connectivity of participants in any faculty development program.

"Perhaps this is the most precious lesson our patients and our students teach us: One cannot heal in a silo; one cannot teach in a silo. As we applaud the initiatives that are being undertaken to break down silos and build up teams in the education of healthcare professionals, we also need to look with new eyes at how we prepare faculty who educate these future healthcare professionals" (Kalb & O'Conner-Von, 2012, p. 44).

Unfortunately student learning and aptitude have only rarely been examined as a part of faculty development program evaluations, while external evaluations of participating faculty from peers, patients, or direct reports seem to be missing entirely (Steinert et al., 2006). Therefore, baseline data have been collected via patient satisfaction surveys and student/resident evaluations to provide the basis for a more robust longitudinal assessment should the ACIT program continue. Surveys or interviews with these constituencies could also be considered. Lastly, it might be informative to hold focus groups with the referents to ascertain their faculty development needs and opinions.

Future evaluations could also be strengthened by including interviews or focus groups with all stakeholders one or two years after the program is completed. The Knowledge, Skills, and Attitudes Survey and the Connectivity Scale could be re-administered at that time as well. In addition, the ACIT alumni and reference groups could be compared according to the number of new collaborations (measured through grants and papers) and the number of institutional leaders (with special attention paid to women and under-represented minorities). These data sets would provide evidence for or against any lasting effects related to the gains in faculty and institutional vitality that may have resulted from ACIT.

Finally, although the trait of resiliency appeared abstractly throughout the evaluation, it was not formally questioned or measured. Evaluations of future ACIT programs could be augmented by a more deliberate inclusion of this construct, as it has been linked to vitality and retention (Zwack & Schweitzer, 2013). There are several well-validated measures with strong psychometric properties that could be considered (e.g.

The Resilience Scale™, the Connor-Davidson Resilience Scale, and the Brief Resilience Scale).

Conclusion

The importance of this research is supported by Kalb and O'Conner-Von, who stated, "Academic structures that effectively facilitate team-based learning in interprofessional education need to be determined, implemented, and then evaluated" (2012, p. 39). This mixed methods evaluation of the ACIT program tells the story of how one medical school incorporated mid-career faculty development into academic medicine. Given that this specific subset of higher education faculty has not yet been studied, we are able to provide a novel perspective to guide other faculty development offices in similar initiatives.

While much has been done to reinforce junior and senior faculty, mid-career faculty have only recently been recognized as warranting and requiring unique support (Dyrbye et al., 2013; Baldwin & Chang, 2006). Given the growing economic uncertainty of medical school funding and the evolution of tenure policies, academic medicine is a particularly vulnerable backdrop for this cohort (Zwack & Schweitzer, 2013). In this new era, medical schools must realize the importance of investing in human capital at this particular stage in order to improve the long term success and stability of their institution. However, in order for a faculty development program to be sustainable, it must produce measurable outcomes that are beneficial to the individual faculty members, as well as their colleagues, patients, and students. In order to attain this lofty goal, such programs

must positively impact both faculty and institutional vitality by enhancing the level of engagement and collaboration. It was the aim of this dissertation to provide sound evidence to ascertain whether ACIT can serve as a model for this endeavor.

APPENDICES

APPENDIX A: Other Evaluation Participants (* The demographics of the ACIT participants and referents are included in Tables 1 and 2)

ACIT Staff	
Name	**Position**
Emelia J. Benjamin, MD, ScM	Vice Chair of Faculty Development and Diversity, Dept. of Medicine, BUSM
Robina M. Bhasin, EdM	Director of Faculty Development and Diversity, Dept. of Medicine, BUSM
Mark G. Braun, BS	Program Director, Organizational Development and Learning, Human Resources, BU
Francine Montemurro, JD	Ombuds, BU
Marianne N. Prout, MD	Director for Faculty Development, BUSPH

Participating Department Chairs / Section Chiefs	
Name	**Department, Position**
David L. Coleman, MD	Medicine, Chair
Jeffrey H. Samet, MD, MA, MPH	Medicine, General Internal Medicine, Section Chief
Kenneth M. Grundfast, MD	Otolaryngology, Chair
Gerard M. Doherty, MD	Surgery, Chair
Jonathan S. Olshaker, MD	Emergency Medicine, Chair
Robert J. Vinci, MD	Pediatrics, Chair
Aviva Lee-Parritz, MD	OBGYN, Chair
Daniel G. Remick, Jr., MD	Pathology, Chair
Brian W. Jack, MD	Family Medicine, Chair

Participating BUMC Leadership	
Name	**Position**
Karen H. Antman, MD	Provost of BUMC and Dean of BUSM
Kate Walsh, MPH	President and Chief Executive Officer of BMC
William R. Creevy, MD	President of the FPF
Ravin Davidoff, MBBCh	Senior Vice President and Chief Medical Officer of BMC

APPENDIX B: ACIT Evaluation Timeline

Evaluation Instrument	Timeline for implementation	Who is recipient of instrument
Student/resident evaluations	Spring & fall semesters 2013	Students and residents working with participants
Patient satisfaction surveys	Last quarter 2013	Patients of participants with clinical duties
Pre-test survey (BU Faculty – Knowledge, Skills and Attitudes)	January 2014	Participants and reference group
360 Evaluation	January 2014	Participants and their identified colleagues
Sense of Community Index 2 (SCI-2)	January 2014	Participants and reference group
Faculty retention rate	January 2014	N/A
Fitbit data on average number daily number of steps taken measured monthly	February – November 2014	Participants and reference group
Module satisfaction questionnaire	After each module (Feb – Nov 2014)	Participants
Post-test survey (BU Faculty – Knowledge, Skills and Attitudes)	December 2014	Participants and reference group
Connectivity scale	December 2014	Participants and reference group
Focus groups with Participants	December 2014 and January 2015	Participants
Interviews with Department Chairs	December 2014	All BUSM and SPH Department Chairs
Interviews with BUMC Leadership	November and December 2014	BUMC Leadership
Interviews with ACIT staff	December 2014	ACIT staff
Patient satisfaction surveys	First quarter 2015	Patients of participants with clinical duties
Student/resident evaluations	Spring & fall semesters 2015	Students and residents working with participants
360 Evaluation	June 2015	Participants and their identified colleagues
Number of new collaborations since	December 2015	N/A

Evaluation Instrument	Timeline for implementation	Who is recipient of instrument
January 2014 (measured through grants and papers)		
Faculty retention rate	May 2020	N/A
Number of institutional leaders that are ACIT alumni (special attention paid to women and under-represented minorities)	May 2020	N/A

APPENDIX C: ACIT Goals and Instruments Grid

Evaluation Objective	Stakeholders	Evaluation instrument(s)	When will data be collected?
I. **ACIT Overarching Learning Goals**			
A. Do participants feel they were able to self-reflect and pursue a personal development plan?	Participants	Pretest / posttest of confidence in curricular content areas	January and December 2014
		Focus group with participants	December 2014 and January 2015
B. Do participants feel connected to their peer cohort and to BUMC as a result of their participation in ACIT?	Participants	Focus group with participants	December 2014 and January 2015
		Sense of Community Index 2 (SCI-2)	January and December 2014
C. Do participants feel they are able to collaborate more effectively with colleagues across disciplines, sectors and roles after participating in ACIT?	Participants	Focus group with participants	December 2014 and January 2015
	Department Chairs of participants	Interviews with Department Chairs	December 2014
	Students of participants	Student evaluations	Spring & fall semesters of 2013 & 2015
	Patients of participants	Patient satisfaction surveys	Last quarter 2013 & first quarter 2015
D. Do participants feel an enhanced ability to implement transformative work in their roles at BUMC?	Participants	Focus group with participants	December 2014 and January 2015
	Department Chairs of participants	Interviews with Department Chairs	December 2014
II. **ACIT Content**			
A. What is the impact of ACIT on participants' confidence in curricular content areas?	Participants	Pretest / posttest of confidence in curricular content areas	January and December 2014
		Physical activity measured by Fitbit	February - November 2014
		Focus group with participants	December 2014 and January 2015

Evaluation Objective	Stakeholders	Evaluation instrument(s)	When will data be collected?
B. Does the content of ACIT meet the needs of mid-career faculty from the participants' perspectives?	Participants	Pretest / posttest of confidence in curricular content areas	January and December 2014
		Focus group with participants	December 2014 and January 2015
C. Does the content of ACIT meet institutional needs for mid-career faculty development?	BUMC Leadership*	Interviews with BUMC Leadership	November and December 2014
	Department Chairs	Interviews with Department Chairs	December 2014
D. What other content areas should be included in the program to better meet the needs of faculty and the institution?	Participants	Focus group with participants	December 2014 and January 2015
	BUMC Leadership	Interviews with BUMC Leadership	November and December 2014
	Department Chairs	Interviews with Department Chairs	December 2014
	ACIT staff	Interviews with ACIT staff	December 2014
E. Are there content areas that should be taken out of the curriculum?	Participants	Focus group with participants	December 2014 and January 2015
		Module satisfaction questionnaire	At the end of each module (Feb-Nov 2014)
III. Pedagogy			
A. Is the approach to facilitation of the modules effective?	Participants	Focus group with participants	December 2014 and January 2015
		Module satisfaction questionnaire	At the end of each module (Feb-Nov 2014)
B. How effective is each facilitator in meeting participants' learning needs?	Participants	Module satisfaction questionnaire	At the end of each module (Feb-Nov 2014)
C. Is the peer learning experience robust?	Participants	Focus group with participants	December 2014 and January 2015
D. Are the group projects an effective approach to learning?	Participants	Focus group with participants	December 2014 and January 2015
	ACIT staff	Interviews with ACIT staff	December 2014
E. Are there alternative approaches to facilitating	Participants	Focus group with participants	December 2014 and January 2015

Evaluation Objective	Stakeholders	Evaluation instrument(s)	When will data be collected?
learning that would be more effective for ACIT?	ACIT staff	Interviews with ACIT staff	December 2014
IV. Impact on faculty work			
A. Are participants translating learning and skill development in the areas of the core competencies to their daily work with students, patients and colleagues?	Participants	Focus group with participants	December 2014 and January 2015
	Immediate colleagues of participants	360 evaluation	January and December 2014
	Department Chairs of participants	Interviews with Department Chairs	December 2014
	Students of participants	Student evaluations	Spring & fall semesters of 2013 & 2015
	Patients of participants	Patient satisfaction surveys	Last quarter 2013 & first quarter 2015
B. Do participants feel more capable of collaborating effectively with colleagues as a result of their participation in ACIT?	Participants	Focus group with participants	December 2014 and January 2015
	Immediate colleagues of participants	360 evaluation	January and December 2014
	BUMC Leadership	Number of new collaborations with participants measured through grants and papers	December 2015
C. What kind of impact (if any) does the program have on participants' perceived abilities to implement new ideas and innovations?	Participants	Focus group with participants	December 2014 and January 2015
	Department Chairs of participants	Interviews with Department Chairs	December 2014
	Students of participants	Student evaluations	Spring & fall semesters of 2013 & 2015
	Patients of participants	Patient satisfaction surveys	Last quarter 2013 & first quarter 2015
V. Impact on institution			
A. What kind of impact does the program have on participants' connectivity to each	Participants	Focus group with participants	December 2014 and January 2015
		Sense of Community Index 2 (SCI-2)	January and December 2014

Evaluation Objective	Stakeholders	Evaluation instrument(s)	When will data be collected?
other and the institution?		Physical activity measured by Fitbit	February – November 2014
B. Does ACIT increase the size and diversity of the faculty pool from which institutional leaders can be selected?	BUMC Leadership	Interviews with BUMC Leadership	November and December 2014
	Department Chairs	Interviews with Department Chairs	December 2014
	BUMC faculty	Number of institutional leaders who are ACIT alumni	January 2020
C. How effective are the ACIT group projects in meeting institutional needs?	Participants	Focus group with participants	December 2014 and January 2015
	BUMC Leadership	Interviews with BUMC Leadership	November and December 2014
	Department Chairs	Interviews with Department Chairs	December 2014
D. Are there additional areas of faculty development that should be addressed by ACIT in order to better meet institutional needs?	BUMC Leadership	Interviews with BUMC Leadership	November and December 2014
	Department Chairs	Interviews with Department Chairs	

APPENDIX D: Instruments Used for Data Collection

In December 2014 and January 2015, we used the following guide to conduct focus groups with the ACIT participants:

Questions – ACIT Participants	Evaluation objective it maps to
1. What did you hope to experience/learn when you decided to apply for ACIT?	Part II Question B
2. What, if any, were the barriers or challenges involved in your participation?	Part II Question B
3. What was the most valuable aspect of the program for you?	Part II Question B
4. What was the least valuable aspect of the program for you?	Part II Question B Part II Question E
5. Please comment on the peer learning aspect of the program and how it contributed to your overall experience.	Part III Question C Part III Question D
6. Please comment on how the group project experience contributed to your learning.	Part III Question C Part III Question D
7. Please comment on what impact, if any, this program had on your sense of connection to your ACIT peers.	Part I Question B Part V Question A
8. To what extent was the program successful or unsuccessful in fostering self-reflection and a career development plan for you?	Part I Question A Part II Question A
9. What skills sets do you feel you learned or improved through the program?	Part II Question A Part IV Question A Part IV Question C
10. What skill sets did you hope to gain but were unable to gain through this program?	Part II Question B Part II Question D Part V Question D
11. Please comment on what impact, if any, this program had on your sense of connection to your primary institution (BUSM, BMC, or SPH).	Part I Question B Part V Question A
12. Please comment on what impact, if any, this program had on your perceived capability to collaborate effectively with colleagues.	Part I Question C Part IV Question B
13. Please comment on the impact, if any, your participation in ACIT has had on your work.	Part I Question D Part II Question A Part IV Question A
14. Please comment on the format of ACIT, with regard to length of the program, length of each module, structure of the modules and anything else you think would be helpful to consider in future iterations of ACIT. Fitbit? 360? Massages? Effectiveness of the ACIT staff with running the program?	Part III

In December 2014, we used the following guide to conduct phone and in-person interviews with each member of the ACIT Staff:

Questions – ACIT Staff	Evaluation objective it maps to
1. How effective did you find ACIT to be in meeting its goals for participant learning? a. Self-reflect and pursue personal development plan b. Connect longitudinally to peer cohort and to larger organization c. Collaborate effectively with colleagues across disciplines, sectors and roles d. Enhance ability to implement transformative work	Part I Question A Part I Question B Part I Question C Part I Question D
2. What other content areas should be included in the program to better meet the needs of faculty and the institution?	Part II Question D
3. Do you think that the group projects provide an effective approach to learning? Why or why not?	Part III Question D
4. What other approaches to facilitating learning would be (more) effective for ACIT?	Part III Question E
5. Are there other reflections on the pilot year of ACIT you would like to share?	All

In October 2013, we sent the following email to each member of the BUMC Leadership:

Prior to our February 2014 launch of the Academy for Collaborative Innovation & Transformation (ACIT), we are developing a comprehensive evaluation of the program. We are very grateful for your support and want to be sure we are evaluating the domains that are critical from your perspective.

1. **What information would you like to see at the end of the first year that would be helpful in deciding whether to continue and/or expand the program?**
   - Participant satisfaction with the program?
   - Impact on faculty engagement and connectivity to the institution among participants?
   - Enhanced leadership skills?
   - Other?
2. **What information would you like to see at the end of five years?**
   - Improved faculty retention rates?
   - Improved faculty engagement across the institution?
   - Increase in innovative projects and collaborations across BUMC?
   - Greater diversity among institutional leaders?
   - Other?

In November and December 2014, we used the following guide to conduct phone and in-person interviews with each member of the BUMC Leadership:

Questions – BUMC Leaders	Evaluation objective it maps to
1. What do you see as the top three challenges the institution is facing?	Part V
2. What is the Academy for Collaborative Innovation & Transformation?	Part II Part IV
3. What do you see as the greatest value ACIT brings to the institution?	Part II Question C Part II Question D Part V
4. What do you see as the greatest weakness of ACIT with regard to meeting institutional needs? 4b. In what specific ways can the program be improved to better meet the needs of the institution?	Part V

In December 2014, we used the following guide to conduct interviews with the BUMC Department Chairs:

Questions – Department Chairs	Evaluation objective it maps to
1. What are the greatest challenges that you face as a Department Chair in regard to faculty development?	Part II Question C Part V Question D
2. What do you see as the primary factors motivating faculty in your department to stay at the institution? What do you see as the primary factors motivating faculty to leave the institution?	Part V Question D
3. What do you understand to be the goals of ACIT and what do you know about the methods that are being used to achieve those goals?	Part I Part III Question A

4. What impact do you think the program has had on your ACIT faculty member(s) with regard to the following areas?
    a. Self-assessment of strengths and areas for growth
    b. Strategically thinking about their career development
    c. Developing organizational savvy
    d. Change leadership
    e. Collaborating with colleagues across disciplines
    f. Recognizing the value of diversity and inclusion
    g. Communicating effectively
    h. Achieving work/life integration
    i. Professional resiliency
    j. Building strategic partnerships and alliances
    k. Financial acumen
    l. Improving efficiency & effectiveness of processes
	Part II Question A
	Part II Question C
	Part II Question D

5. Do you think the program has had an effect on other faculty members in your department?
    a. Collaboration
    b. Connectivity – to the institution and/or colleagues
	Part IV Question A
	Part IV Question B
	Part V Question A

6. Do you anticipate that the member(s) of your faculty who participated in the ACIT program will experience a change in their ability to impact positive change in their work environments in the next 1-2 years? 3-5 years? Why or why not?	Part IV Question A Part IV Question C Part V Question B
7. What do you see as the greatest benefit that ACIT brings to your department?	Part V Question A
8. What do you see as the greatest weakness of ACIT with regard to meeting your departmental goals?	Part V Question D
9. What would be the impact of the ideal faculty development program on your department? What skills would this ideal faculty development program build in participating faculty?	Part V Question D

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1/23/2014   Qualtrics Survey Software

BUMC Faculty - Survey of Knowledge, Skills, and Attitudes

Default Question Block

Thank you in advance for completing this survey. Your responses will remain confidential and will only
be reported in aggregate.

Please create an alpha-numeric ID for the purposes of allowing us to link your responses from today's
survey with future surveys while maintaining your anonymity and confidentiality. We suggest you use
your mother's birthday, childhood street address, or another ID that is easy for you to remember but not
associated with your own personal information.

Please rate your level of ability, in the following areas, at this point in time.

	Novice	Advanced Beginner	Competent	Proficient	Expert
1. Identify my own strengths and weaknesses	○	○	○	○	○
2. Establish a development plan for my career	○	○	○	○	○
3. Recognize who our stakeholders are and how to meet their needs	○	○	○	○	○
4. Improve both quality and efficiency	○	○	○	○	○
5. Be a leader who is visionary and transformative	○	○	○	○	○
6. Be a leader who is able to fulfill daily obligations and tasks	○	○	○	○	○
7. Understand where, when and why we spend resources	○	○	○	○	○
8. Communicate effectively with colleagues	○	○	○	○	○
9. Communicate effectively with the media	○	○	○	○	○
10. Pitch a project to potential funders or supporters	○	○	○	○	○
11. Build and manage collaborative teams	○	○	○	○	○

https://bostonu.qualtrics.com/ControlPanel/Ajax.php?action=GetSurveyPrintPreview&T=42CP6F   1/3

	Strongly Agree	Agree	Neither Agree nor Disagree	Disagree	Strongly Disagree
12. Establish strategic partnerships and alliances	○	○	○	○	○
13. Negotiate and resolve conflict effectively	○	○	○	○	○
14. Manage process and projects effectively and efficiently	○	○	○	○	○
15. Continue to learn and grow on an ongoing basis throughout my career	○	○	○	○	○
16. Consider trade-offs of investing in different areas	○	○	○	○	○
17. Recognize and manage my innate and implicit biases	○	○	○	○	○
18. Effectively & respectfully engage diverse groups of colleagues, trainees, patients	○	○	○	○	○
19. Understand what disruptive innovation is and how it impacts our lives	○	○	○	○	○
20. Lead in times of change and uncertainty	○	○	○	○	○
21. Create cultures that nurture innovation	○	○	○	○	○

Please rate your agreement with the following statements.

	Strongly Agree	Agree	Neither Agree nor Disagree	Disagree	Strongly Disagree
BUSM/SPH/BMC cares about me.	○	○	○	○	○
I am receiving guidance and/or support for my progress/performance.	○	○	○	○	○
BU Medical Campus is a place where careers can develop.	○	○	○	○	○
I am connected to and supported by my colleagues at work.	○	○	○	○	○

The following questions ask you to rate your behaviors in the workplace. To what extent do you...

	Never	Rarely	Sometimes	Most of the Time	Always
Work toward a solution rather than just identifying a problem?	○	○	○	○	○
Pull a team together when you see a problem?	○	○	○	○	○
Initiate action when you see a problem?	○	○	○	○	○
Ensure ongoing self-awareness through self-reflection?	○	○	○	○	○

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reflection?

Ensure ongoing self-awareness by eliciting feedback from colleagues?	○	○	○	○	○
Take responsibility to provide constructive feedback to colleagues with whom you are working, without being asked?	○	○	○	○	○
Fully engage with team members and dedicate the time/effort needed (when you are a member of a team)?	○	○	○	○	○

Connectivity Scale

Default Question Block

Please create an alpha-numeric ID for the purposes of allowing us to link your responses from today's survey with future surveys while maintaining your anonymity and confidentiality. We suggest you use your mother's birthday, childhood street address, or another ID that is easy for you to remember but not associated with your own personal information.

When answering the following questions about *community*, please consider your primary home institution (e.g. BUSM, SPH, or BMC).

How important is it to you to feel a sense of community with other community members?

- ⊙ Not at all Important
- ⊙ Very Unimportant
- ⊙ Somewhat Unimportant
- ⊙ Neither Important nor Unimportant
- ⊙ Somewhat Important
- ⊙ Very Important
- ⊙ Extremely Important

How well do each of the following statements represent how you *feel* about your community?

	Not at all	Somewhat	Mostly	Completely
1. I get important needs of mine met because I am part of this community.	⊙	⊙	⊙	⊙
2. Community members and I value the same things.	⊙	⊙	⊙	⊙
3. This community has been successful in getting the needs of its members met.	⊙	⊙	⊙	⊙
4. Being a member of this community makes me feel good.	⊙	⊙	⊙	⊙
5. When I have a problem, I can talk about it with members of this community.	⊙	⊙	⊙	⊙

6. People in this community

6. People in this community have similar needs, priorities, and goals.	○	○	○	○
7. I can trust people in this community.	○	○	○	○
8. I can recognize most of the members of this community.	○	○	○	○
9. Most community members know me.	○	○	○	○
10. This community has symbols and expressions of membership such as clothes, signs, art, architecture, logos, landmarks, and flags that people can recognize.	○	○	○	○
11. I put a lot of time and effort into being part of this community.	○	○	○	○
12. Being a member of this community is a part of my identity.	○	○	○	○
13. Fitting into this community is important to me.	○	○	○	○
14. This community can influence other communities.	○	○	○	○
15. I care about what other community members think of me.	○	○	○	○
16. I have influence over what this community is like.	○	○	○	○
17. If there is a problem in this community, members can get it solved.	○	○	○	○
18. This community has good leaders.	○	○	○	○
19. It is very important to me to be a part of this community.	○	○	○	○
20. I am with other community members a lot and enjoy being with them.	○	○	○	○
21. I expect to be a part of this community for a long time.	○	○	○	○
22. Members of this community have shared important events together, such as holidays, celebrations, or disasters.	○	○	○	○
23. I feel hopeful about the future of this community.	○	○	○	○
24. Members of this community care about each other.	○	○	○	○

All things considered, how satisfied are you with your faculty career at your institution?

○ Very Dissatisfied

○ Dissatisfied

○ Neutral

○ Satisfied

○ Very Satisfied

Which of the following are the most important reasons you stay at your institution? Check all that apply.

☐ It is difficult to find a more desirable position elsewhere

☐ The research and professional work that I am able to conduct here

☐ The patient care/clinical work that I do here

☐ The teaching/education work that I do here

☐ The position, rank, and responsibility I have here

☐ The visibility I have here

☐ The salary I have here

☐ The financial resources for my work that I have here

☐ The reputation of the institution

☐ The colleagues I have here

☐ The support the institution provides for career flexibility

☐ The support the institution provides for balancing my work and personal or family life

☐ My spouse/partner has a career in this institution/community

☐ The city/community in which the institution is located

☐ None of the above

Are there any other factors that may impact whether you choose to stay at your institution? If so, please explain.

[   ]

SENSE OF COMMUNITY INDEX II

The following questions about community refer to: [insert community name].

How important is it to you to feel a sense of community with other community members?

1	2	3	4	5	6
Prefer Not to be Part of This Community	Not Important at All	Not Very Important	Somewhat Important	Important	Very Important

How well do each of the following statements represent how you *feel* about this community?

		Not at All	Somewhat	Mostly	Completely
1.	I get important needs of mine met because I am part of this community.	O	O	O	O
2.	Community members and I value the same things.	O	O	O	O
3.	This community has been successful in getting the needs of its members met.	O	O	O	O
4.	Being a member of this community makes me feel good.	O	O	O	O
5.	When I have a problem, I can talk about it with members of this community.	O	O	O	O
6.	People in this community have similar needs, priorities, and goals.	O	O	O	O
7.	I can trust people in this community.	O	O	O	O

Sense of Community Index

		Not at All	Somewhat	Mostly	Completely
8.	I can recognize most of the members of this community.	O	O	O	O
9.	Most community members know me.	O	O	O	O
10.	This community has symbols and expressions of membership such as clothes, signs, art, architecture, logos, landmarks, and flags that people can recognize.	O	O	O	O
11.	I put a lot of time and effort into being part of this community.	O	O	O	O
12.	Being a member of this community is a part of my identity.	O	O	O	O
13.	Fitting into this community is important to me.	O	O	O	O
14.	This community can influence other communities.	O	O	O	O
15.	I care about what other community members think of me.	O	O	O	O
16.	I have influence over what this community is like.	O	O	O	O
17.	If there is a problem in this community, members can get it solved.	O	O	O	O
18.	This community has good leaders.	O	O	O	O
19.	It is very important to me to be a part of this community.	O	O	O	O
20.	I am with other community members a lot and enjoy being with them.	O	O	O	O
21.	I expect to be a part of this community for a long time.	O	O	O	O
22.	Members of this community have shared important events together, such as holidays, celebrations, or disasters.	O	O	O	O
23.	I feel hopeful about the future of this community.	O	O	O	O
24.	Members of this community care about each other.	O	O	O	O

Instructions for Scoring the Revised Sense of Community Index

1. Identifying the Community Referent

The attached scale was developed to be used in many different types of communities. Be sure to specify the type of community the scale is referring to before administering the scale. Do not use "your community" as the referent.

2. Interpreting the Initial Question

The initial question "How important is it to you to feel a sense of community with other community members?" is a validating question that can be used to help you interpret the results. We have found that total sense of community is correlated with this question – but keep in mind this may not be true in every community.

3. Scoring the Scale

For the 24 questions that comprise the revised Sense of Community Index participants:

Not at All = 0, Somewhat = 1, Mostly = 2, Completely = 3

Total Sense of Community Index = Sum of Q1 to Q24

Subscales   Reinforcement of Needs = Q1 + Q2 + Q3 + Q4 + Q5 + Q6

    Membership = Q7 + Q8 + Q9 + Q10 + Q11 + Q12

    Influence = Q13 + Q14 + Q15 + Q16 + Q17 + Q18

    Shared Emotional Connection = Q19 + Q20 + Q21 + Q22 + Q23 + Q24

Academy for Collaborative Innovation & Transformation
Module Satisfaction Questionnaire

Default Question Block

We are deeply appreciative of your feedback and suggestions to improve this program. Please answer all questions thoughtfully and honestly. Responses are used to adapt the program to better meet your needs.

How valuable was the CONTENT of the module for you overall?

Poor	Fair	Good	Very Good	Excellent
◎	◎	◎	◎	◎

How valuable was the CONTENT of each of the following sessions?

	Poor	Fair	Good	Very Good	Excellent
Session 1	◎	◎	◎	◎	◎
Session 2	◎	◎	◎	◎	◎
Session 3	◎	◎	◎	◎	◎
Session 4	◎	◎	◎	◎	◎
Session 5	◎	◎	◎	◎	◎
Session 6	◎	◎	◎	◎	◎
Session 7	◎	◎	◎	◎	◎
Session 8	◎	◎	◎	◎	◎
Session 9	◎	◎	◎	◎	◎

How would you improve the CONTENT of this module?

How effective was the FACILITATION of each of the following sessions?

	Very Ineffective	Ineffective	Neither Effective nor Ineffective	Effective	Very Effective
Session 1	◎	◎	◎	◎	◎
Session 2	◎	◎	◎	◎	◎
Session 3	◎	◎	◎	◎	◎

Session 4	○	○	○	○	○
Session 5	○	○	○	○	○
Session 6	○	○	○	○	○
Session 7	○	○	○	○	○
Session 8	○	○	○	○	○
Session 9	○	○	○	○	○

How would you improve the FACILITATION of this module?

[ ]

How helpful was the discussion in your LEARNING COMMUNITY?

Poor	Fair	Good	Very Good	Excellent
○	○	○	○	○

Do you have any suggestions to improve the LEARNING COMMUNITIES?

[ ]

How helpful was the time spent meeting with your CAPSTONE PROJECT TEAM?

Poor	Fair	Good	Very Good	Excellent
○	○	○	○	○

Please identify one take-away from this module that you can implement.

[ ]

Please identify one take-away from prior modules that you have implemented.

[ ]

Do you have additional comments about ACIT that would be helpful to share at this time?

[ ]

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CURRICULUM VITAE

MaryAnn W. Campion
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37 Pershing Rd, #1
Jamaica Plain, MA 02130
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EDUCATION

Boston University – Boston, MA
Doctoral Candidate, Educational Leadership & Policy Studies
- Anticipated dissertation completion   May 2015
- Coursework completion   June 2014
- Additional formal training in educational policy, organizational analysis, program evaluation, project management, qualitative and quantitative research methodology, administration, proposal development, and legal issues in higher education
- Certificate in Program Planning, Management, Monitoring & Evaluation

University of South Carolina – Columbia, SC
Master of Science in Genetic Counseling   May 2000
Honors: Outstanding Genetic Counselor Award, class of 2000
                  Distinguished Alumni Award, 2010

Furman University – Greenville, SC
Bachelor of Science in Psychology   May 1998
Honors: Magna Cum Laude   Alpha Epsilon Delta: Premedical Honor Society
                  Phi Beta Kappa   Psi Chi: Psychology Honor Society

ACADEMIC APPOINTMENT

Boston University School of Medicine
          Assistant Professor of Obstetrics & Gynecology   2012 – present
          Assistant Professor of Pediatrics   2004 – 2012

PROFESSIONAL EXPERIENCE

Boston University School of Medicine - Boston, MA
    Director, Master of Science Genetic Counseling Program   2003 – present
- Recruited to establish a master's program in genetic counseling
- Developed the structure and content for a two-year curriculum, including course syllabi, observation and rotation opportunities, and Capstone Project (thesis) guidelines
- Acquired approval from Boston University School of Medicine to grant a Master of Science Degree in Genetic Counseling
- Acquired provisional accreditation as a New Program from the American Board of Genetic Counseling (ABGC) in 2004, followed by Full Accreditation in 2008
- Serve as the course director for six graduate courses
  - GMS GC601 Professional Issues in Genetic Counseling
  - GMS GC603 Embryology, Teratology and Prenatal Genetics
  - GMS GC711 Advanced Genetic Counseling
  - GMS GC712 Metabolic Genetics / Advanced Risk Assessment
  - GMS GC714 Advanced Medical Genetics
  - GMS MS677 An Introduction to Evidence-Based STEM Teaching
- Lecture in six additional graduate courses
  - GMS GC600 Genetic Diagnosis and Laboratory Methods
  - GMS GC602 Clinical Genetics
  - GMS MH703 Counseling Techniques (mental health counseling students)
  - GMS PS701 Basic Medical Sciences (physician assistant students)
  - MED MS130 Medical Genetics (medical students)
  - SDM MB511 Molecular Genetics (dental students)
- Supervise students during prenatal observations and rotations
- Provide guidance on student theses, including IRB submission
- Serve as academic advisor to 16 graduate students each year
- Manage the day-to-day operations of the Master's Program in Genetic Counseling, including scheduling of classrooms and meetings, planning special events, overseeing steering committee and advisory board, updating the website and recruitment material, managing the budget, and organizing the application, interview, and admissions process

PROFESSIONAL EXPERIENCE, cont.

Boston University School of Medicine - Boston, MA
   Assistant Dean, Division of Graduate Medical Sciences (GMS)   2015 – present
- Works with the program leadership in each master's program to design and execute an internal self-study followed by an external site visit to generate a program evaluation report for the Provost of BUSM and the President of BU
- Assists faculty and program leadership in remediation of any issues that are revealed
- Ensures that programs' learning outcomes, assessment, and evaluation processes are consistent with regional and discipline-specific accreditation standards
- Represents the Division of GMS at the university level on the Program Learning Outcomes Assessment Working Committee
- Developed and implemented a new course evaluation program for the master's and doctoral programs
- Designed an exit survey to be completed by all masters students

Boston Medical Center - Boston, MA   2003 – 2014
   Genetic Counselor, Antenatal Testing Unit
- Provided prenatal and preconception genetic counseling
- Coordinated Perinatal Palliative Care program
- Provided consultations in the Neonatal Intensive Care Unit
- Served on Fetal Board Committee
- Participated in High-Risk Conference

Center for Human Genetics, Inc. - Boston, MA   2003 – 2009
   Research Coordinator
- Recruited families for a genetic study on Chronic Intestinal Pseudo-Obstruction

Greenwood Genetic Center - Greenville, SC   2000 – 2003
   Genetic Counselor, Greenville Memorial Hospital
- Provided prenatal and pediatric counseling and NICU consultations
- Led support groups for genetic disorders and recurrent pregnancy loss
- Provided genetic presentations to medical residents, local high schools, universities, and teachers' courses
- Recruited and counseled patients for the South Carolina NTD Prevention Initiative
- Screened egg-donation candidates for the Greenville Memorial Infertility Program
- Supervised genetic counseling students during clinical rotations

CERTIFICATION AND LICENSURE

American Board of Genetic Counseling – Certified Genetic Counselor   2002 – present
Commonwealth of Massachusetts – Licensed Genetic Counselor   2009 – present

SPONSORED RESEARCH

Evaluation of Family Health History Tools for Public Health, sponsored by Boston University's Clinical and Translational Science Institute, Principal Investigator: Catherine Wang, 2011 - present
- Worked closely with the PI on the development of the virtual counselor prototype and advised on the pilot study protocol. Will oversee the bilingual genetic counselor to be hired to conduct the family history intakes for the validation of the family history tools.
- Accepted for oral presentation at the 2013 American Public Health Association conference

PROFESSIONAL AFFILIATIONS, COMMITTEES, & CONSULTATION

Accreditation Council for Genetic Counseling (ACGC)
Online Accreditation Application Task Force, 2013 – present
- Selected to serve on a 6-member national task force to develop an online accreditation management system and to revise all reporting and self-study forms

Standards Task Force, 2011 – 2013
- Selected to serve on a 9-member national task force to reevaluate the required criteria for master's programs seeking accreditation

American Board of Genetic Counseling (ABGC)
Practice Analysis Committee, 2010 – 2011
- Selected to serve on an 11-member national committee to reevaluate the current responsibilities to be assessed on the certification exam

Arcadia University, Master's Program in Genetic Counseling
Strategic Planning Consultant, 2014

Association of Genetic Counseling Program Directors (AGCPD)
Member, 2003 – present
Finance Committee, 2011 – present
Salary Workgroup, 2009 – present
Program Development Workgroup, chair – present
Qualified Applicant Workgroup, 2010

PROFESSIONAL AFFILIATIONS, COMMITTEES, & CONSULTATION, cont.

Boston University School of Medicine (BUSM)
Mid-career Faculty Development Task Force, 2012 – present
- Curriculum Design Team, Admissions Committee, and Principle Program Evaluator
Division of GMS, Academic Steering Committee, 2004 – present
Division of GMS, Course Evaluation Committee, 2011 – 2013
- Committee Chair; created the course evaluation template to be used throughout the Division; increased usage of course evaluations from 38% to 85% in 18 months
Division of GMS, Biostatistics Committee, 2011 – 2013
Sustainability Committee, 2008 – 2012
Medical Student Training (Objective Structured Clinical Exam), 2006, 2007, 2009

Duke University Medical Center, Clinical Research Institute
Consultant, Isaac Lipkus' grant on risk communication education in genetic counseling training programs, 2009 – present

Framingham Heart Study,
Genetic Counselor, 2012
Ethics Advisory Board, 2004 – 2011

Genetic Alliance, Newborn Screening Clearinghouse
Materials Working Group, 2009 – present

GoodStart Genetics
Chair, Genetic Counseling Advisory Board, 2010 – present

Journal of Genetic Counseling
Peer-Reviewer, 2012 – present

Massachusetts Genetic Counselors Licensure Task Force
Member, 2004 – 2007

National Association of Student Personnel Administrators (NASPA)
Member, 2013-present

National Society of Genetic Counselors (NSGC)
Member, 1999 – present
Prenatal Special Interest Group Member, 2001 – 2003, 2009 – present
Nominations Committee, 2011 – 2012
Membership Committee, 2006, 2008 – 2012

PROFESSIONAL AFFILIATIONS, COMMITTEES, & CONSULTATION, cont.

National Society of Genetic Counselors (NSGC), cont.
    Student / New Member Orientation subcommittee, 2012
    Professional Status Survey subcommittee, 2008 – 2012
    Diversity subcommittee, 2009 – 2010
    Annual Education Conference, Communications Committee, 2005 – 2006
    Jane Engelberg Memorial Foundation Project , 1999 – 2000

New England Regional Genetics Group (NERGG)
    Member, 2004 – present
    NERGG Genetic Counseling Conference, Planning Committee, 2009, 2011, 2013

Wicker Smith O'Hara McCoy & Ford P.A.
    Legal consultant, 2010

Transnational Alliance for Genetic Counseling
    Member, 2006 – present

PUBLICATIONS

- Wang, C, Bickmore, T, Bowen, DJ, Norkunas, T, **Campion**, M, Cabral, H, Winter, M, Paasche-Orlow, M (2014). Acceptability and feasibility of a virtual counselor (VICKY) to collect family health histories, *Genetics in Medicine,* PMID: 25590980

- Wilson KL, Czerwinski JL, Hoskovec JM, Noblin SJ, Sullivan CM, Harbison A, **Campion** MA, Devary K, Devers P, Singletary CN (2012). NSGC Practice Guidelines: Prenatal Screening and Diagnostic Testing Options for Chromosome Aneuploidy, *J Genet Coun,* PMID: 23179172.

- Schneider K, Austin J, Baxter S, **Campion** MA, Kumaravel S, Ready K, Riley B, Seabold C, Zimmerman H (2012). Professional Status Survey. National Society of Genetic Counselors, www.nsgc.org.

- **Campion** MA (2011). Zen and the Art of Program Development, *J Genet Coun,* PMID: 22127474.

- Lautenbach D, Hiraki S, **Campion** MA, Austin J (2011). Mothers' perspectives on their child's mental illness as compared to other complex disorders in their family: insights to inform genetic counseling practice, *J Genet Coun,* PMID: 22089936.

PUBLICATIONS, cont.

- Stuenkel AJ, **Campion** MA, Allain D, Hample H (2011). Transition to the Clinical Doctorate: Attitudes of the Genetic Counseling Training Program Directors in North America, *J Genet Coun,* PMID: 21892706.

- Baxter S, **Campion** MA, Freivogel M, Powell K, Rich T, Schneider K (2010). Professional Status Survey. National Society of Genetic Counselors, www.nsgc.org.

- **Campion** MA, DuPont BR, Rogers RC (2003). Mother and daughter with an interstitial deletion of 13q. *Proceedings of the Greenwood Genetic Center, 22*, 8–12.

- **Campion** MA, Rogers RC (2002). Autosomal dominant aplasia cutis congenita, *Proceedings of The Greenwood Genetic Center, 21,* 20–24.

- Everman DB, **Campion** MA, Rogers RC (2001). Spina bifida in an infant with Williams syndrome, *Proceedings of the Greenwood Genetic Center, 20*, 22–28.

CONTINUING EDUCATION

Education
> Center for Excellence and Innovation in Teaching, *Assessing Course and Program Performance* workshop, BU - 2011
> The Teaching Professor Conference, Washington, DC - 2009
> Virtual Lecture Workshop, BUSM - 2007
> Multiple Choice Test Construction Workshop, BUSM - 2007
> Implementing Team-Based Learning Workshop, BUSM - 2006

Genetics & Genetic Counseling
> New England Regional Genetics Group, GC Conference   - 2009, 2011, 2013
> NSGC, Annual Education Conferences - 2001, 2003-2008, 2010–2014
> New England Regional Genetics Group, Annual Meetings - 2004–2008, 2010
> NSGC, Short Course: Professional Development, Kansas City, MO - 2007
> NSGC, Regional Conferences, 1999 – 2006
> Transnational Alliance for Genetic Counseling, Manchester, England - 2006
> Baystate Genetics Conference, Springfield, MA - 2004
> NSGC, Short Course: Psychiatric Genetics, Charlotte, NC - 2003
> American College of Medical Genetics, Annual Meeting, San Diego, CA - 2003

Professional Development
> Life & Death Before Birth: Stillbirth & Bereavement, Boston, MA - 2008
> Phlebotomy Training & Certification, Boston, MA – 2005
> Resolve Through Sharing (RTS) Bereavement Training Course, SC - 2001

CONTINUING EDUCATION, cont.

Spanish Language
> Executive Spanish Course, Antigua, Guatemala (100 hours) - 2007
> Advanced Conversational Spanish, Boston, MA (30 hours) - 2006
> Spanish for Healthcare Providers, parts I and II, Greenville, SC (30 hours) - 2003

MEDIA

Media quotation – *New York Times,* Conflict Potential Seen in Genetic Counselors, by Andrew Pollack, July 24, 2012

Book foreward – *Dads with Disability*, by Gary Dietz, 2014

PRESENTATIONS

NSGC Annual Education Conference, New Orleans, LA, Sept 2014
"Genetic Counseling Training: How to Start, Expand, or Revitalize a Program" – Q. Stein, C. Reiser, M. Campion, R. Bennett, N. Danylchuk, D. Quinn, I. Wallace (oral)

"Emerging Genetic Counselor Roles within the Biotechnology and Pharmaceutical Industries: *As Industry Interest Grows in Rare Genetic Disorders, How are Genetic Counselors Joining the Discussion?"* – T. Field, S. Brewster, M. Towne, M. Campion (oral, T. Field)

"Exploring Parental Perspectives on the Return of Genomic Results for Children Enrolled in a Pediatric Genetic Biorepository" – P. Connors, S. Savage, S, Ziniel, K. Dies, M. Campion, C. Wang, I. Holm (poster)

"Examining GIST Patients' Understanding of Somatic Tumor Testing and Personalized Medicine" – S. Stickevers, M. Campion, E. Thorpe, E. Dalton (poster)

"Confirmed Versus Suspected: The Social Significance of a Genetic or Non-Genetic Diagnosis of Mitochondrial Disease" – E. Krieg, L. Calderwood, M. Campion, K. Krepkovich (poster)

"Exploring Fathers' Roles and Experiences with Dissemination of Sexual Health Information to their Children with Down syndrome" – L. Torrey, A. Cirino, S. Cullen, M. Campion (poster)

PRESENTATIONS, cont.

Boston University Medical Campus, John McCahan Medical Education Day, May 2014
  "Developing a Program Assessment Model" (oral)

Boston Medical Center, Academic Primary Care Fellowship, Boston, MA, Feb 2014
  "Genetic Screening in Preventive Medicine" (oral)

NSGC Annual Education Conference, Anaheim, CA, Oct 2013
  "Exploring the influence of religiosity and spirituality on the ability to cope with
  adverse genetic testing results, and the impact on mental health following genetic risk
  disclosure for Alzheimer's disease in the REVEAL Study" – E. Vaccari, D.
  Lautenbach, S. Brewster, M. Campion (poster)

Health Literacy Research Conference, Washington, DC, Aug 2013
  "Using virtual counselors to overcome literacy-related barriers in the collection of
  family health histories" - C. Wang, T. Bickmore, D. Bowen, T. Norkunas, M.
  Campion, H. Cabral, M. Winter, M. Paasche-Orlow (oral, C. Wang)

Boston University, Preprofessional Advising, Boston, MA, Jan 2013
  "The ABCs of Genetic Counseling" (oral)

NSGC Annual Education Conference, Boston, MA, Oct 2012
  "Recontact Upon Reclassification of Previously Identified Variants of Unknown
  Significance: Assessing Current Practices and Challenges Facing Diagnostic
  Laboratories" – J. Walsh, S. Baxter, S. Brewster, M. Campion (poster)

American College of Medical Genetics Annual Meeting, Charlotte, NC, Mar 2012
  "Phenotypic evaluation and natural history of Ehlers Danlos Syndrome Hypermobility
  Type (EDS-HT)" – N. Vena, M. Campion, M. Giovanni (poster)

NSGC Annual Education Conference, San Diego, CA, Oct 2011
  "The Clinical Doctorate in Genetic Counseling: Assessing the attitudes and
  preferences of program directors" – A. Stuenkel, H. Hampel, S. Brewster, M.
  Campion (oral, A. Stuenkel)

Boston University, Preprofessional Advising, Boston, MA, Jan 2011
  "The ABCs of Genetic Counseling" (oral)

NERGG Annual Conference, Portsmouth, NH, Dec 2010
  "Cystic Hygromas: What features are most predictive of outcome?" (oral)

PRESENTATIONS, cont.

NSGC Annual Education Conference, Dallas, TX , Oct 2010
"Effects of Methadone Use on Maternal Serum Screening" – J. Davie, C. Grant, M. Campion (poster)

"Methods for Developing a New Genetic Counseling Position in a Specialty Clinic" – J. Hardt, A. Cirino, C. Gill, M. Campion (poster)

"Preconceptions of Conception: The reported expectations and experiences of individuals pursuing preimplantation genetic diagnosis" – K. Coles, J. Goehringer, M. Campion, S. Jamal (poster)

NSGC Annual Education Conference, Atlanta, GA, Nov 2009
"A Survey of Prenatal Genetic Counselors' Knowledge, Experience, and Role in Perinatal Hospice" – J. Dick, K. Krepkovich, L. Demers, M. Campion (poster)

"Availability, Density, and Accessibility of Genetic Counseling Services" – I. Wallace, M. Flynn, K. Thomas, R. Yashon, M. Campion (poster)

"Perceptions of Severe Mental Illness Compared to Other Common Complex Disorders among Family Members of Affected Individuals" – D. Lautenbach, S. Hiraki, M. Campion, J. Austin (poster)

BUSM and Brandeis Genetic Counseling Programs Supervision Workshop, Oct 2009
"Working with Millennials: How to be an Effective & Inspiring Teacher" (oral)

Boston Medical Center, Amyloid Program, Boston, MA, Oct 2009
"The Impact of GINA (Genetic Information Nondiscrimination Act)" (oral)

NSGC Annual Education Conference, Los Angeles, CA, Oct 2008
"Assessing the Perceptions of Genetic Counseling within the Adoption Community" – L. Bartomioli, K. Apse, D. Bowen, M. Campion (poster)

"Patients' Viewpoints Surrounding Preimplantation Genetic Diagnosis" – T. Sousa, S. Jamal, M. Campion, R. Yashon, K. Pagidas (poster)

East Boston Neighborhood Health Center, Family Medicine, Boston, MA, Jan 2008
"Prenatal Genetic Counseling & Maternal Serum Screening" (oral)

PRESENTATIONS, cont.

NSGC Annual Education Conference, Kansas City, MO, Oct 2007
"Genetic Counselors' Experiences with Presenting Adoption to Patients/Families with a Prenatally Diagnosed Birth Defect or Genetic Condition" – C. Oksala, K. Apse, S. Brewster, M. Campion (poster)

"Assessing Patient Knowledge and Satisfaction regarding Pregnancy Screening and Patient Education" – A. Lovelette, J. Goehringer, L. Demers, M. Campion (poster)

Boston Medical Center, Family Medicine Grand Rounds, Boston, MA, Oct 2007
"Updates on Maternal Serum Screening" (oral)

NERGG Annual Conference, Durham, NH, Dec 2006
"46,XX Sex-Reversed Male: A Prenatal Diagnosis Following Routine Amniocentesis" (oral)

ASHG Annual Conference, New Orleans, LA, Oct 2006
"hMSH2 Mutation Identified in a Family with Muir-Torre Syndrome: Genetic Counseling Perspective" – Z. Wang, M. Flynn, M. Whalen, J. Milunsky (poster)

Quincy College Graduate Course in Health Sciences, Quincy, MA, May 2006
"The ABC's of Genetic Counseling and Testing" (oral)

NSGC Region I Conference, Marlborough, MA, Mar 2006
"Maximizing the Student Supervision Experience" (oral)

NERGG Annual Conference, Durham, NH, Dec 2005
"Rare Interstitial Deletion of Chromosome 1p - Newborn with Multiple Congenital Anomalies" (oral)

Sickle Cell Disease and Pregnancy Conference, Boston, MA, Sept 2005
"The Genetics of Sickle Cell Disease" (oral)

Genetics for Clinicians Conference, Boston, MA, May 2005
"Hereditary Colon Cancer and Genetic Testing" (oral)

NERGG Annual Conference, Durham, NH, Dec 2004
"Duplication of 11q detected by CGH in a 10-year-old Male with Mental Retardation" (oral)