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The Relationship between Interprofessional Leadership Education and Interprofessional Practice: How Intensive Personal Leadership Education Makes a Difference

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Abstract

OBJECTIVES To study the effects of the University of North Carolina at Chapel Hill (UNC) Interdisciplinary Leadership Development Program (ILDP) on interprofessional attitudes, beliefs, and use of skills. ILDP is a collaboration among five campus-based U.S. Maternal and Child Health Bureau-funded training programs. These programs included Leadership Education in Neurodevelopmental and Related Disabilities (LEND), Nutrition, Pediatric Dentistry, Public Health, and Social Work.

METHODS Using a post-test design, participants in the ILDP from the five training programs were contacted to complete a web-based survey. LEND and Public Health graduates who had not participated in the ILDP were recruited for comparison. Using scales and open-ended questions, we asked graduates to rate the influence of ILDP on their attitudes/beliefs about interprofessional practice, to report the frequency of use of interdisciplinary skills, and to describe those influences on the use of skills in some detail.

RESULTS The 208 respondents represented 60% of the graduates from 2001 through 2008. Graduates reported that the yearlong Interdisciplinary Leadership Development Program, a supplement to conventional discipline-based training influenced their interprofessional attitudes, beliefs, and the use of interprofessional skills. In particular, a 3-day Leadership Intensive workshop enhanced graduates' understanding of individual leadership practices and heightened their appreciation of the assets and challenges of others working in groups.

CONCLUSIONS With increasing focus on interprofessional health teams, many evaluations of training neither describe nor measure explicitly the elements of training that enable students to develop interprofessional attitudes, beliefs, and skills. In an evaluation that demonstrated these outcomes, we have described the key role of intentional, personal leadership training in producing these outcomes. Interprofessional training programs should be expected to provide logic models for the relationship between training and the desired outcomes.

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Introduction

To address the increasing complexity of public health and medical care, national and international entities and scholars have encouraged educators to develop programs to enhance the capacity of professionals to collaborate. Each group has suggested that some combination of dedicated interprofessional and interdisciplinary education and intentional practice are critical in creating competent interdisciplinary professionals. For example, *To Err is Human* calls for organizations to "establish interdisciplinary team training programs for providers" (Kohn, Corrigan, Donaldson, & McKenzie, 2000, p. 14), while *Crossing the Quality Chasm* advocates that "clinicians and institutions should actively collaborate and communicate to ensure an appropriate exchange of information and coordination of care" (Committee on Quality of Health Care in America, 2001, p. 209). Frenk et al. promote a competency-based approach to educating health professionals in which teamwork or collaboration is a core competency (Frenk et al., 2010), while the Interprofessional Education Collaborative recently underscored the need for a seamless transition from education to collaborative practice (Interprofessonal Educaton Collaborative Expert Panel, 2011). In a recent commentary, Berwick (2014) underscores the fundamental role of collaboration at the level of health systems, beyond clinical care.

The first training programs supported by the United States federal Maternal and Child Health Bureau (MCHB) in the late 1940s were motivated by the need to develop professionals who could build services that enable children to benefit from the perspectives of multiple disciplines, such as physicians, nurses, and public health workers (Athey, Kavanaugh, Bagley, & Hutchins, undated). In recent years, the MCHB articulated 12 core leadership competencies (Table 1), six of which seem especially relevant to creating an interprofessional environment: communication, negotiation and conflict resolution, cultural competency, family-centered care, developing others through teaching and mentoring, and interdisciplinary team building (MCH Leadership Competencies Workgroup, June 2009).

While the field of Maternal and Child Health (MCH) has produced many graduates who have provided interprofessional leadership, there is a paucity of research on the specific elements of interprofessional training that facilitate the development of interprofessional competencies. As reported elsewhere (Margolis et al., 2012) the MCH Leadership Consortium at the University of North Carolina at Chapel Hill has demonstrated that interprofessional training improved graduates' attitudes and beliefs about the value of interprofessional practice, and increased their frequency of use of interprofessional skills in practice. The items used to elicit attitudes and beliefs and the frequency of skill use are shown in Table 2 (following page). Most importantly, graduates who reported stronger attitudes or beliefs about the value of interprofessional practice and more frequent use of interprofessional skills were statistically more likely to report that they had contributed to improvements in a specific program, organization, or partnership.

Table 1. *Core MCH Leadership Competencies*

1. MCH Knowledge Base/Context
2. Self-reflection
3. Ethics & Professionalism
4. Critical Thinking
5. Communication
6. Negotiation & Conflict Resolution
7. Cultural Competency
8. Family-Centered Care
9. Developing Others through Teaching and Mentoring
10. Interdisciplinary Team Building
11. Working with Communities and Systems
12. Policy and Advocacy

Source: Maternal and Child Health Leadership Competencies (Version 3.0). http://leadership.mchtraining.net/?page_id=132

This article addresses two questions: (1) how do graduates rate the impact of the Interdisciplinary Leadership Development Program (ILDP) on their attitudes/beliefs and use of skills? and (2) what components of the ILDP were influential in developing attitudes/beliefs and skills for interprofessional practice? We have identified themes that have the potential to inform interprofessional leadership training efforts by the MCH Bureau and other entities committed to workforce development.

Background

As described elsewhere (Dodds et al., 2010) the Interdisciplinary Leadership Development Program

Table 2. *Items Used to Elicit Attitudes and Beliefs about Interprofessional, and Interdisciplinary Care, and Frequency of Skill Use*

Attitudes and Beliefs
• Providing services in interdisciplinary groups helps professionals become more sensitive to the diverse needs of consumers/patients than providing services as a single discipline.
• The benefits of interdisciplinary patient care or program plans are worth the extra time it takes to communicate across disciplines.
• The interdisciplinary approach reduces duplication and fragmentation in the delivery of care/services.
• Providing services as an interdisciplinary group gets better results for consumers than working as single disciplines.
• Interdisciplinary education should be a part of every health professional's pre-service training.
• I welcome the opportunity to collaborate with members of other disciplines.
• I value the contributions of other disciplines to my work.
• When I look for my next position, I will purposefully look for an opportunity where collaboration across disciplines is the norm.
Skills
• Assemble interdisciplinary group members appropriate for a given task.
• Resolve conflicts in interdisciplinary groups.
• Facilitate family-provider partnerships.
• Effectively work with *consumers* with cultural backgrounds different from my own.
• Effectively work other *professionals* with cultural backgrounds different from my own.
• Coach co-workers in interdisciplinary practice.
• Share ideas from my discipline with members of other disciplines.
• Ask for insight or help from members of other disciplines to address a problem.
• Use self-reflection to enhance my contributions to interdisciplinary work.
• Establish decision-making procedures in an interdisciplinary group.
• Develop a shared vision, roles and responsibilities within an interdisciplinary group.
• Critically evaluate information from other disciplines.
• Evaluate how well an interdisciplinary group is working together.
• Intervene to improve interdisciplinary group function.

(ILDP) was a collaboration among the five MCHB-funded training grants at UNC during the years reflected in this report. The purpose of the ILDP is to enhance the leadership capacity of participating graduate students, post-doctoral fellows, and dental residents from the five training grants by bringing them together in an interdisciplinary environment to focus on leadership, an interest shared among the programs. Public health and nutrition students were earning master's degrees in public health. Social work students were earning dual MSW/MPH degrees. Dental residents came from the Pediatric Dentistry program. Participants from the Leadership for Education in Neurodevelopmental and Related Disorders (LEND) program included graduate students and occasional post-doctoral fellows from the many disciplines that constitute LEND programs.

All of the trainees in Pediatric Dentistry, Nutrition, and Social Work participated in the ILDP. Due to the size of the cohorts in Public Health and LEND, the ILDP participation from those programs was limited to 3-4 students. The total yearly cohort was 25-30 participants. In the early years, the fellows met for only three workshops during the academic year, but based on feedback from fellows, over time the ILDP evolved to include six workshops and participation in an annual UNC Minority Health Conference (Table 3, following page). By May 2009, eight cohorts had completed the program.

The three-day intensive component of the ILDP is an example of a feedback-intensive leadership development program. The ILDP builds on this intensive experience

Table 3. *Instructional Elements and Objectives of the Interdisciplinary Leadership Development Program*

Instructional Element	Schedule	Objectives
Orientation	2 hours (August)	• Recognize the role of leadership development in the context of Title V • Introduce the concept of an interdisciplinary leadership cohort
Leadership Intensive Workshop	22 hours (over three days in September)	• Understand personal leadership style • Recognize how different styles may influence team dynamics and organizational culture • Create individual leadership goals for the year
Conflict Resolution/ FacilitationWorkshop	8 hours (on one day in October)	• Recognize styles of conflict resolution • Appreciate one's conflict resolution preferences • Define the stages of team formation • Analyze team processes and roles
Cultural Competence Workshop	4 hours (February)	• Define cultural competence • Analyze personal and organizational barriers to enhancing the environment for diverse cultures • Discuss strategies to enhance the environment of organizations
Minority Health Conference	8 hours (February)	• Recognize prominent research and practice issues in enhancing the health of minority populations • Articulate how one's personal leadership style(s) facilitate approaches to minority health issues and health disparities
Family-Professional Collaboration Workshop	4 hours (March)	• Define family professional partnership • Examine strategies to incorporate partnership principles into clinical, organizational, research, and policy domains of MCH practice
Leadership Reflection Workshop	2 hours (April)	• Assimilate lessons from workshops, home departments/programs, and personal experiences to define personal leadership goals further • Articulate strategies for ongoing leadership development • In leaving a legacy, prioritize recommendations for ongoing development of the Leadership Program

with intentional threading of participant insights throughout all of the activities shown in Table 3. Using discussion of feedback from diagnostic instruments, such programs have been reported to improve leaders' knowledge and self-awareness of their personality preferences, personal strengths and challenges, and how they influence one's success as a leader observed by peers (Guthrie & Kelly-Radford, 1998). Luthans and Peterson (2003), for example, showed that a multi-rater assessment combined with systematic coaching led to improvements in staff ratings of managers' competencies, such as planning, communication, and taking responsibility for their actions. Luthans and Peterson (2003) ground their work and conclusions partly in the theoretical work of Bandura (1999) and Tsui and Ashford (1994) who have discussed the importance of managerial self-awareness (understanding how they are acting and how their actions are perceived by others), and ongoing adaptive self-regulation to reduce discrepancies between what others need and want from their and their current performance.

In health care, multiple-source feedback, an important component of the ILDP, has been shown to improve physicians' communication with their patients, families and colleagues, increase self-reflection, strengthen intention to improve areas of professional practice, and change behavior in interactions with peers (Miller, Umble, Frederick, & Dinkin, 2007).

Methods

Theoretical Framework and Constructs

Previously, we have shown that controlling for individual program (i.e., Public Health, Social Work, etc.), ILDP participation was associated with increased frequency of use for interprofessional/interdisciplinary

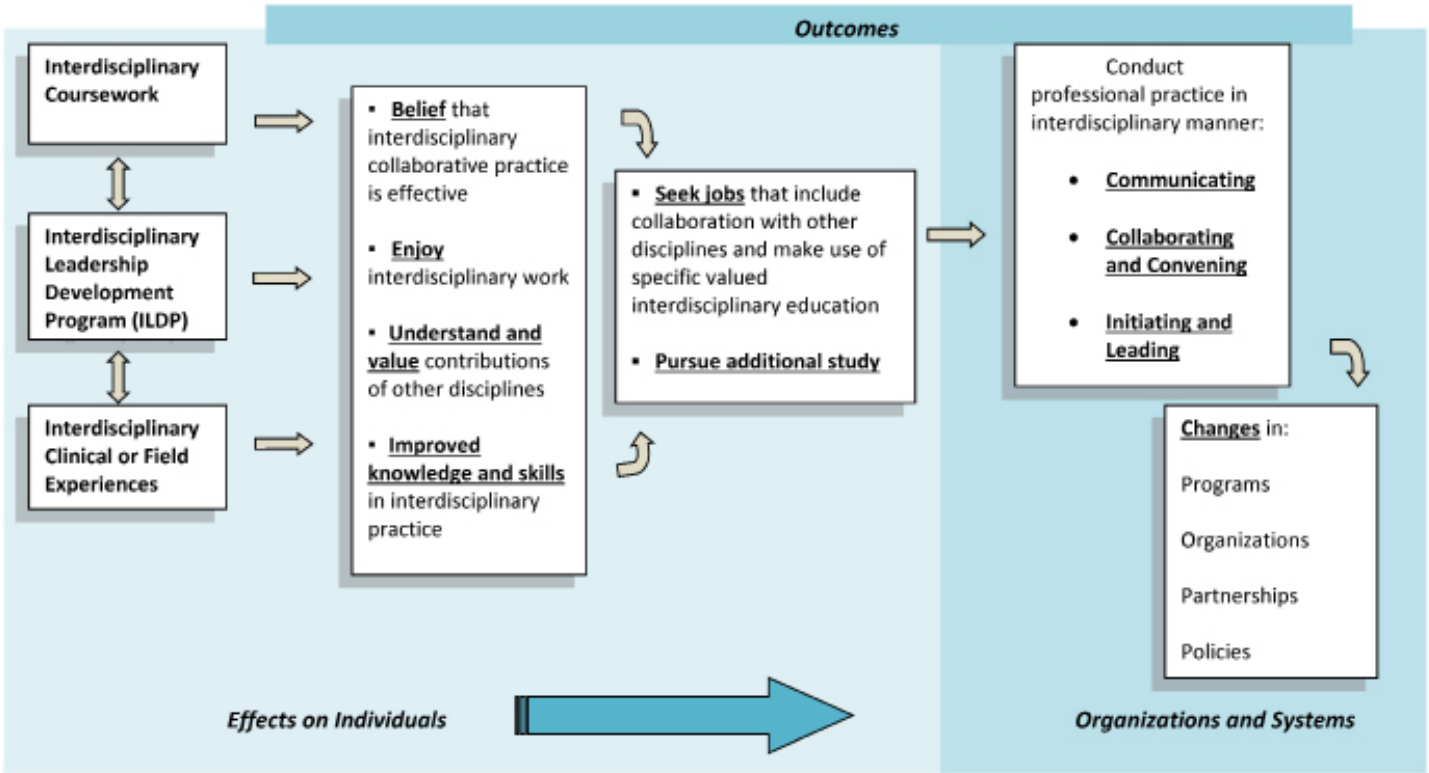
skills, and to a lesser degree enhanced attitudes/beliefs about interdisciplinary practice (Margolis et al., 2012). Here, we focus on the association between the ILDP and: (1) attitudes or beliefs towards interprofessional practice; (2) understanding of interprofessional practice; (3) improved knowledge and increased use of interprofessional skills; and, (4) enjoyment or appreciation of interprofessional practice (Figure 1). Guided by Davidson's evaluation methods for exploring causation in the absence of an explicit comparison group, we address participant ratings and descriptions of the influences of the ILDP on their interprofessional outcomes (Davidson, 2005).

Survey Instrument

Because enhancing the capacity for interprofessional leadership was a major objective of the ILDP, we asked three questions. First, drawing on leadership competencies from Maternal and Child Health Leadership Competencies shown in Table 1, we asked respondents, on a 5-point scale, to rank the extent to which the ILDP strengthened five competencies: (1) ability to communicate with consumer or community members; (2) ability to communicate with professionals from other disciplines; (3) ability to negotiate and resolve conflicts; (4) self-awareness as a leader: my understanding of my strengths, liabilities, and how others view my leadership; and, (5) my ability to work with people of different cultures. In a previous report, we demonstrated the relationship between the ILDP and interprofessional team building (Margolis et al., 2012). Second, we asked respondents to assess the influence of ILDP participation on their approach to work, on a 4-point scale ranging from "no influence" to "had a large influence on the interprofessional character of my approach to my work." Third, in an open-ended question, respondents were asked to "explain in some detail one of the most important influences that participating in the ILDP had on the way that you go about your work, or on the work you have taken on."

This research was approved by the non-biomedical IRB of the University of North Carolina at Chapel Hill.

Figure 1. *Conceptual Model for Examining the Effects of the Interdisciplinary Leadership Development Program on Interdisciplinary/Interprofessional Attitudes/Beliefs and Skills*



Population Studied and Sample Selection

The population included all graduates of the five participating training programs from 2001-2009 and all participants in the ILDP from 2001-2008. The 208 responses represented an overall weighted response rate of 60% (Dentistry 83%, Nutrition 70%, Public Health 58%, Social Work/Public Health 56%, LEND 56%). Two of the programs—LEND and Public Health—did not provide the ILDP for all of their trainees, so non-participants provided a comparison group to assess the impact of the ILDP. All of the students in the other three programs—Pediatric Dentistry, MSW/MSPH, and Nutrition—participated in the ILDP.

Analysis

Analysis of the quantitative data was limited to descriptive means. To analyze the qualitative data, an evaluator developed a set of codes—or labels—within each category outcome that the graduates reported (Merriam, 2009). For example, codes included "self-awareness" which sometimes led to statements related to "addressing weaknesses," "capitalizing on strengths," and "becoming reflective." The evaluator drew these categories and codes out of the data themselves, rather than from any specific prior theoretical framework. The evaluator then coded each graduate's response to the open-ended questions using this set of codes, modifying and expanding the codes as necessary so that they would capture all of the major themes in the responses. Finally, the evaluator sorted these categories into major themes and analyzed how the themes were related to one another. For example, becoming more self-aware led many graduates to "address weaknesses" or "capitalize on strengths."

Results

Quantitative Responses about the Effects of the ILDP on Approaches to Work

Table 4 shows that the overall means for the five interprofessional leadership competencies range from 2.8 to 4.1, with four competencies clustering around means of 3 in contrast to the mean of 4.1, on a scale from "not at all" to "greatly."

There are likely two reasons for the high rating for the *self-awareness as a leader competency* ("a large amount"). This competency was the focus of the three-day Leadership Intensive Workshop at the beginning of the academic year. In addition, the ILDP was designed to promote and encourage threading of the insights gained during the Intensive workshop throughout the year.

With regard to the influence of the ILDP on approaches to work, 20% of ILDP participants noted a "large influence" and 46% a "moderate influence."

Qualitative Insights about the Effects of the ILDP

Responses to the prompt, "Please explain in some detail one of the most important influences that participating in the ILDP activities has had on the way you go about your work, or on the work you have taken on," allowed us to explore further the impact of the ILDP and to elicit aspects of that training that seemed to affect behavior. We identified two over-arching themes, expressed

Table 4. *Influence of ILDP on Graduates' Interdisciplinary Leadership Competencies*[a]

Statement	Mean for all ILDP programs
The ILDP program improved my ability to communicate with consumers/community members.	2.8
The ILDP program improved my ability to communicate with professionals from other disciplines.	3.2
The ILDP program improved my ability to negotiate and resolve conflicts.	3.1
The ILDP program improved my self-awareness as a leader: my understanding of my strengths, liabilities, and how others view my leadership.	4.1
The Consortium program enhanced my ability to work with people of different cultures.	2.9

[a]Scale: 1 = not at all, 2 = a little, 3 = somewhat, 4 = a large amount, 5 = greatly

as: (1) the role of greater understanding of one's own individual leadership styles and practices; and, (2) the styles and practices of others.

Qualitative analysis showed that when graduates described the ILDP's influence on them, they most frequently mentioned the 3-day Leadership Intensive workshop, of the ILDP components shown in Table 3. Many graduates stated that the intensive program had a lasting impact on their practice of leadership, fostered self-awareness, reflective practice, and adaptive self-regulation in relation to the expectations and needs of others on their teams, and helped graduates to better understand others, recognize and value their contributions, and more reflectively and effectively collaborate and lead interprofessional teams.

Greater Understanding of One's Individual Leadership Styles and Practices

Self-awareness

Many explained lasting impacts on how they understand their leadership "style," "strengths," "core values," and "weaknesses." A dental graduate explained that the program had "improved my ability to identify my leadership skills and identify potential weaknesses," while a nutrition graduate emphasized gaining significant new self-understanding from the leadership intensive workshop,"The 3-day session for self-assessment and reflection was really revealing to me and gave me the opportunity to think about myself in ways that hadn't occurred to me previously."

Another nutrition graduate stated, "I gained a lot of self-acceptance from participating in the [ILDP] and consider it to be one of the most valuable experiences of my graduate school career." Many others described practical uses of this self-knowledge.

Addressing Challenges

Increased self-awareness led many graduates to take action to address their challenges in relation to others they worked with or to capitalize on their strengths—both examples of adaptive self-regulation of behavior to meet the needs and expectations of others. Several graduates cited finding what they described as "weaknesses"—such as habits of mind and approaches toward others—that they had addressed. For example, a nutrition graduate explained having learned from the Leadership Intensive workshop that "I am capable of being a leader and that being a leader doesn't mean controlling others, but working hard at working effectively with co-workers of other disciplines as well as my own discipline," implying an ongoing, conscious effort to regulate her behaviors to enable effective collaboration.

Another, a dentist, explained taking on a more participatory approach to leadership, recognizing the need to foster a team's reflection and course corrections over time:

> *Previously, I would have solved a problem on my own in a way that I felt made the best sense. Now, I obtain input from parties involved, I collect relevant information, I encourage group participation to resolve problems and I take the stance that what might result as a solution today will mostly likely require amendment somewhere down the road as we are striving to constantly improve what we do.*

Capitalizing on Strengths, Becoming Reflective

Several graduates described identifying personal leadership "strengths" and then seeking leadership positions or roles in which they could "capitalize on" or "use" those strengths. Many also described becoming more reflective as leaders or managers, modulating their actions based on awareness of their own tendencies and the preferences and characteristics of the people they are working with. For example, a social work graduate explained:

> *Participating in the [Leadership Intensive workshop] … helped me to reflect on my work and my tendencies in terms of how I operate in group settings. It has helped me to increase my effectiveness by proactively seeking tasks and roles that are aligned to how I best operate and it has also pushed me to be a better manager.*

Using varying language, many others cited becoming more reflective or self-critical in their approach to leadership, and consciously adapting their leadership to fit the situation and the people with whom they are working. For example, a social work graduate explained:

> *I value the process of interdisciplinary work and cultural sensitivity. I am the co-chair of the Advocates for Adolescents Committee, part of [a statewide coalition's local office in my county]. We work closely with professionals from many disciplines and do outreach into the community on a regular basis. I appreciate the importance of having self-awareness about my own strengths and weaknesses and knowing how to use that knowledge in effective collaboration with my colleagues and consumers.*

Another way that the Leadership Intensive workshop influenced the leadership of some graduates came by changing their understanding of the nature of leadership itself, leading them to reflect on the implications of this new understanding for their work. For example:

> *The three-day leadership course…provided me with the opportunity to think about the meaning of leadership as well as how to translate leadership into my work and career path. As a result, I often think about what it means to be a leader in my daily work, and make an effort to take on leadership roles in my job.*

Greater Understanding of Others: Working Effectively Together, Recognizing and Valuing Others' Contributions

Many graduates added that the program had also helped them to better understand others, which enabled them to work more effectively with them, to understand and value their contributions to work groups, and to be more patient when their personality styles and work approaches differed. These examples also show that greater awareness of others' preferences, styles, and strengths also led to adaptive self-regulation to improve interactions with others.

Several graduates explained how their greater understanding of others' varying styles enabled them to work more effectively with others. A social work graduate explained:

> *The [Leadership Intensive workshop] activities supported further growth in managing diverse, challenging teams by recognizing general personality traits in myself and others in order to strengthen interpersonal communication and team dynamics.*

Another social work graduate explained:

> *I learned a lot about myself as a leader—how my personality and my strengths and weaknesses affect the way that I lead and interact with others. I also learned a great deal about how others' personalities/strengths/weaknesses affect the way they interact with me. This knowledge has enabled me to…more effectively interact with people in a group setting.*

Graduates also emphasized how the Leadership Intensive workshop had helped them become more cognizant of and receptive to the diverse contributions that others bring to teams, leading them to have greater patience with and acceptance of the different styles or preferences of colleagues. For example, a LEND graduate described less "blaming" and more acceptance of others who work differently:

> *[The Leadership Intensive workshop helped] me understand my own strengths and the variability of working/personality styles so I am slower to 'blame' others who work differently than I do; this has altered the way that I approach working as a team and has allowed me to shift to a more understanding and accepting approach of those who are 'wired' differently.*

Another graduate explained gaining explicit skills from the ILDP conflict management workshop, "I think the Consortium activities helped me think critically about conflict resolution, and address it more from the perspective of understanding another person's motivations and needs rather than simply their position."

Many graduates also explained that the ILDP had helped them recognize, value, and be more receptive to others' strengths—whether those differences were related to leadership style and personality, or to disciplinary background. For example, several graduates cited better recognition and valuing of others with different leadership styles. For example, an MPH graduate explained:

> *The exercises we did with regards to the Myers-Briggs and thinking about how different people work and communicate best was very influential in opening my mind to the need to be creative and flexible in*

the way that I proceed with getting goals met. I think I have also learned better to recognize and enable good leadership in others, which is necessary when working in the area of technical assistance and consultation.

Others seemed to emphasize better understanding and valuing of others from different disciplines. For example, a LEND participant noted:

One of the most important influences the [ILDP] has had on the way I work is that I am very aware of my leadership style and my responsibility to share information from my perspective as an audiologist in an effective, beneficial manner to my patients, their families, other professionals and the community in general. It's not enough to just treat audiology-related issues for my patients. I also need to help their families by connecting them with needed resources whenever possible. I need to collaborate with other professionals to improve the overall outcomes for my patient and I need to be a proactive ambassador for my field as a whole.

Another example of the programs' influence on better understanding others from different disciplines came from this MSW/MSPH graduate:

In creating an interdisciplinary learning environment, this program provided a good platform for gaining some insight into how my social work and public health lenses affect my professional interactions with people from different training backgrounds and different professional "lenses."

Summarizing the Impact of the ILDP on Interprofessional Attitudes, Beliefs, and Skills

To sum up this section, we provide one extensive quotation from a graduate who synthesized into a single statement many of the benefits described by other graduates.

[The] intensive [workshop] allowed me to understand much more clearly than ever before what role I tended to play in teams and how my tendencies to operate in a certain way played out as both strengths and weaknesses. The intensive [workshop] also provided me with strategies and tools to better capitalize on some of those strengths as well as to challenge myself on some of the tendencies that tend to be weaknesses in my work. Most importantly, the work we did as an interdisciplinary group helped me to better understand how other people operate and what approaches different than my own can bring to a team. Having that understanding has helped me continually challenge myself to attend to my role on a team not only as an active participant but also as a "receptive" member of the team...by which I mean that I now believe that how I recognize, acknowledge, support, and sometimes challenge other team members who have very different approaches from me is equally important to the success of our interdisciplinary work.

Discussion

The core study underlying this manuscript was an evaluation of the effects on attitudes/beliefs and use of skills for two curricular approaches to interprofessional leadership development: the ILDP and the five individual training programs. Graduates who participated in the ILDP greatly valued this learning experience, because it helped them gain insights not only into their own interprofessional capacities, but also into those of others. Developing self-awareness and reflective practice and the ability to recognize and value the contributions of colleagues promoted interprofessional attitudes, beliefs, and skills, including:

- listening to the perspectives of other disciplines
- appreciating the value of other disciplines
- presenting the point of view of one's own discipline, and
- understanding the value of other disciplines in improving the outcomes of professional work at clinical or community levels

Participants came to perceive "weaknesses" in themselves and others not as flaws, but simply differences, and differences are to be celebrated, not devalued. Indeed, appreciating and facilitating differences is the key to effective interprofessional teams.

As leadership has moved away from a charismatic leader model to that of a shared or collaborative approach, training has trended more towards collaborative and applied leadership models and use interactive adult

learning models (Brookfield, 1986; Tsui & Ashford, 1994). The ILDP emphasizes attitudes and skills that enhance the capacity to collaborate and to facilitate collaboration. Furthermore, students engaged in activities that invited interaction and encouraged practice in using the skills that were informed by the psychological assessments and the insights that flowed from them (Margolis et al., 2012). Responses revealed many expressions of enjoyment about the learning, which led to commitment to the attitudes and skills under study. Consequently, trainees were more likely to make a personal investment in interprofessional practice.

From the outset, the focus of the ILDP was on understanding others, beyond simply understanding others' *professional disciplines*. The ILDP seems to encourage participants to develop a capacity for what we have begun to refer to as "genuine curiosity" about what motivates and underlies others' behavior and thinking, about their interests and needs, rather than their specific positions when views differ (Schwarz, 2013). This type of engagement inherently "disassembles" or "disarms" what are sometimes perceived as barriers put up by disciplines (Kreindler, Dowd, Dana Star, & Gottschalk, 2012). The ILDP curriculum, developed around a competency model, further encourages a passion for interprofessional practice that may well enhance the effectiveness of the skills that participants have acquired. These insights demonstrate that interprofessional training is much more than simply taking courses in other disciplines or with students from other disciplines, as is too often the case in conventional interprofessional programs, where the conceptual models such as the one we have described are not made explicit. The qualitative responses suggest that the ILDP played a meaningful role in the development of interprofessional attitudes, beliefs, and use of skills. This should alert training programs to the importance of gathering and analyzing behavioral outcomes (e.g., the frequency with which skills are used), beyond simply inquiring about the perceived value of a particular training or program.

The fact that the MCH Leadership Consortium has attended to many of the necessary characteristics of settings for interprofessional training described in the literature is an additional explanation for the effectiveness of this training (Cooper, Carlisle, Gibbs, & Watkins, 2001; Hammick, Freeth, Koppel, Reeves, & Barr, 2007; Reeves et al., 2008). For example, the ILDP faculty (Consortium) enabled interprofessional leadership champions from different training programs to convene, hold one another accountable, expand governance, promote a culture of collaboration, and share leadership and responsibility for the curriculum, publications, and presentations, to "model the way" as described in the influential work of Kouzes and Posner (2008). Participants experience this leadership culture as well as the resultant program. This may be especially influential, given the timing of the ILDP, early in the professional development of our participants.

One limitation is that since interprofessional training has many manifestations in these programs, it was a challenge to discriminate between a group of students with and without exposure to interprofessional training. While statistical modeling in a prior publication (Margolis et al., 2012) demonstrated the impact of the ILDP on attitudes, beliefs, and skills, our design did not enable us to examine possible exposures to the content of the ILDP for graduates who had not explicitly participated in that program. We were guided, however, by Davidson's thoughtful recommendations for inferring causation, given design limitations (Davidson, 2005). A number of the eight causation strategies that Davidson describes were relevant. For example, participants themselves identified key elements of the ILDP, especially the Leadership Intensive workshop, as having an effect on them. Adding to this insight by participants, graduates from the LEND program in particular who had been exposed to the ILDP showed stronger effects than the non-participants.

Conclusions: Implications for MCH Leadership Training

Engaging trainees in an early intensive workshop to establish a core interpersonal skill set and building upon these skills with subsequent workshops that emphasized core MCH competencies through modeling, practice, and feedback boosted interprofessional practice. With the growing emphasis on interprofessional practice, educators should design and implement training that acknowledges this approach. Assembling students of various disciplines may have an impact on their abilities to work as interprofessional teams, but effective training requires more intentionality. Programs should enable students to gain insights into

their own strengths and challenges as interprofessional leaders and the strengths and weaknesses of potential team members. Understanding other disciplines and understanding how team members think, feel, and communicate are both fundamental to effective teams. Over the course of the academic year, students develop a culture of collaboration and community of practice surrounding MCH training. Our experience suggests that intentionality, planning, and accountability around interprofessional leadership should be an expectation for training programs.

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