

Does Leadership Training Make a Difference? The CDC/UC Public Health Leadership Institute: 1991–1999

Carol Woltring, Wendy Constantine, and Liz Schwarte

Public health leadership development programs have proliferated since the release of the Institute of Medicine's call for strengthened public health leadership. Little has been documented, however, about the impact of these programs. This article presents results of an eight-year retrospective evaluation of the Centers for Disease Control/University of California Public Health Leadership Institute, the nation's first year-long leadership development program serving senior public health leaders. Results show that this program has had a positive impact on participants' leadership effectiveness at the personal, organizational, and community levels as well as on the field of public health.

Key words: *evaluation, leadership, public health*

Introduction

A sentinel event occurred in 1988 that spurred self-assessment, focus, clarification, and an increased commitment to improving public health infrastructure, core functions, and leadership—the Institute of Medicine's (IOM) publication of *The Future of Public Health*.¹ That document described a leadership in disarray in the public health field and served as a wake-up call to federal agencies, schools of public health, national public health professional organizations, and public health officials across the country. Many innovations in public health emerged from that honest and useful assessment of the field, including a focus on training leaders in public health.

In response to the report, the Centers for Disease Control and Prevention (CDC) convened a group of key federal agencies and national professional organizations to design a strategy to answer this challenge. CDC, through its Public Health Practice Program Office (PHPPPO), took the lead and committed funding for a national public health leadership development program in 1991. As a result, the first national leadership venture of its kind, the CDC/University of California (UC) Public Health Leadership Institute (PHLI), was launched in 1991. CDC/

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PHPPO has continued to expand its commitment to leadership training since 1991 with support for the development of many state and regional PHLIs throughout the country as well as their network, the National Public Health Leadership Development Network (NLN), and the Public Health Leadership Society (the PHLI alumni network). In 2000, CDC funded the second phase of PHLI, the National Public Health Leadership Institute (NPHLI), launched in 2000 through a partnership headed by the University of North Carolina at Chapel Hill's School of Public Health.

Leadership development programs in general—and specifically in the health field—have proliferated in recent years. They serve leaders from a variety of backgrounds and professional disciplines. Some programs are short in duration; others engage participants for a year or longer. Because of the prevalence and variety of these programs, it is important for the leadership development field to assess their impact, particularly using long-term retrospective approaches. A small but core set of published and unpublished work on leadership development impact provides a foundation for this work.^{2–8} Some new work on leadership evaluation is being conducted by the W.K. Kellogg Foundation, a pioneer in leadership development programs. The foundation recently commissioned a study of 55 leadership programs to learn about the tools and approaches being used to evaluate outcomes and impacts. Preliminary data suggest that there is growing interest in conducting retrospective evaluations, although only about 20% have actually done so. (The full results of the scan are available at www.leadershiponline.wkkf.org. For further information, contact Ali Webb, W.K. Kellogg Foundation, Battle Creek, Michigan, or Dr. Claire Reinelt, Development Guild/DDI, Brookline, Massachusetts.)

Within public health, there has been emphasis on clarifying leadership competencies for curriculum development⁹ and early work on evaluation methodologies by the NLN. A recent scan of the literature and conversations with NLN leaders have not identified any published evaluation findings from these leadership training enterprises. Credible, long-term evaluation activities require funding and human resources unavailable to many of the institutes and programs. Conversations within the public health leadership development community, however, re-

vealed a strong desire for public health leadership development evaluation. In *Public Health Leadership*,¹⁰ Rowitz calls on leaders to show strong support for evaluation of public health leadership development programs.

In 1998, the Center for Health Leadership & Practice (CHLP), Public Health Institute, attempted to secure funding to conduct a comprehensive evaluation of what had become a significant investment by CDC, staff and consultants, and over 440 leaders in the development and implementation of the PHLI model. The intent was to expand evaluation activities and deepen the findings presented in an earlier published article.¹¹ The feeling was that there were impacts that could be documented beyond the anecdotes constantly being provided, and there was both a professional obligation and a desire to provide the field results from the PHLI model. Although additional funding was not received, a minimum set of resources and skilled consultant staff was identified to conduct a comprehensive retrospective evaluation of PHLI.

This article presents the results of this retrospective evaluation of the first eight years (1991–1998) of the CDC/UC PHLI by CHLP, Public Health Institute. It makes a case for the evaluation of leadership development institutes and programs in public health.

History of the CDC/UC PHLI

The CDC/UC PHLI was established through a cooperative agreement initially with the Western Consortium for Public Health in California (1991–1994) and subsequently with the University of California Los Angeles (UCLA) School of Public Health (1995–2000). Three collaborating schools of public health were involved with PHLI during its history: the University of California, Berkeley, School of Public Health; the University of California, Los Angeles, School of Public Health; and San Diego State University Graduate School of Public Health. From 1991 to 2000, it was managed by CHLP, Public Health Institute. (CHLP is a leadership training, consultation, and resource center serving local, national, and international health leaders and organizations. CHLP has designed and currently manages and/or is a partner in several leadership development programs including the State Health Directors Executive Mentoring and Consultation Program and the International Family Planning Leadership Program.)

From 1991 to 2000, the institute's mission was to strengthen America's public health system by enhancing the leadership capacities of senior public health officials to address the challenges facing public health. Its goals were to develop scholars' abilities to create and implement, with their organizations and communities, a shared vision for the public's health; the skills to mobilize resources and the organizational and community capacity necessary to address public health challenges and achieve the national health objectives; and a national network that fosters life-long learning and shapes the future of public health.

The institute's key educational objectives were to:

- provide scholars with knowledge, skills, and experiences that enhance their commitment and ability to provide public health leadership
- support scholars in exercising leadership within their own agency or jurisdiction, within professional organizations and schools of public health, and within other contexts
- enhance scholars' skills and abilities to develop collaborations that contribute to the development of healthy communities

PHLI designed and implemented a year-long model of individual public health leadership development using learning teams, peer support, action learning, on-site and distance learning, and a cutting edge curriculum. (Figure 1 illustrates the PHLI theory of action.) PHLI learning activities included teleconferences, readings, electronic seminars, an intensive on-site week, peer consultation and networking, and an applied leadership initiative. In recent years, the PHLI curriculum has focused on the following core curriculum areas: personal growth for leadership excellence; leading organizational change; and community building and collaborative leadership.

Each year, the institute selected approximately 60 senior officials from state, local, and federal public health agencies, public health academia, health systems, and national health organizations as scholars in the year-long program. From 1991 to 2000, the institute graduated 502 scholars from 48 states. In 1993, alumni formed the Public Health Leadership Society (PHLS) to further their development as leaders, provide continuous learning opportunities, promote a professional and personal network, contribute to innovative thinking about public health

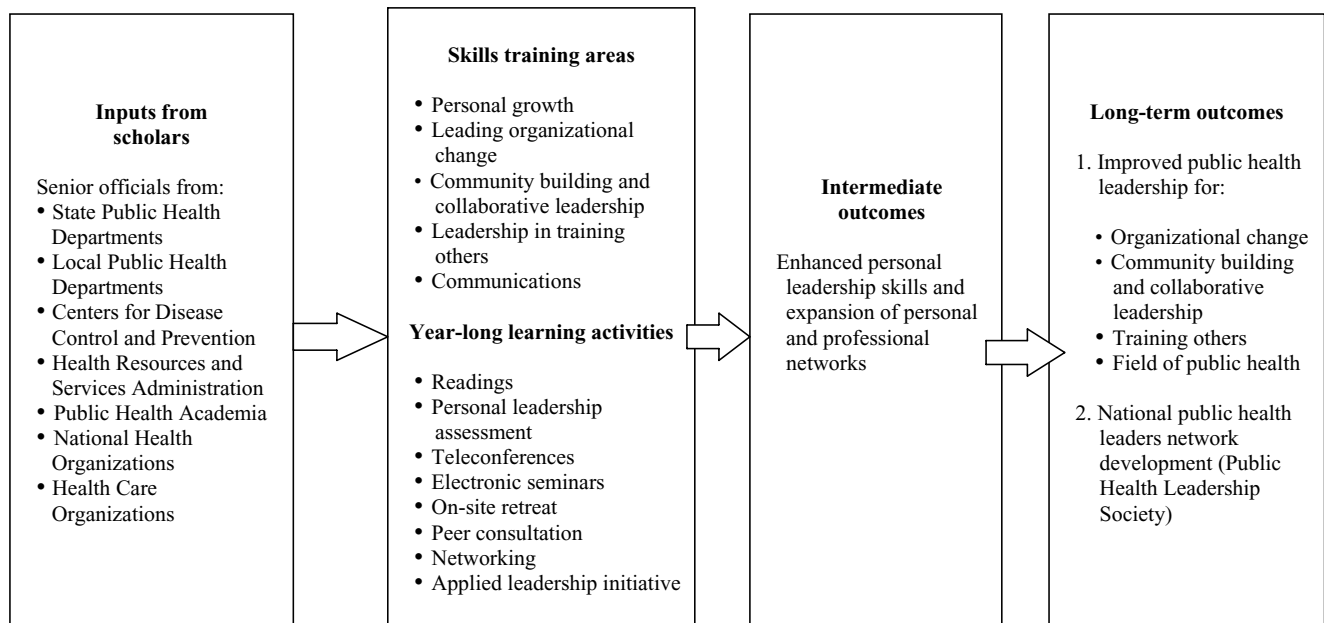


Figure 1. CDC/UC Public Health Leadership Institute's theory of action.

issues, and strengthen leadership capacity in public health.

Public health leadership development

The PHLI training model has been widely replicated by public health leadership institutes at the local, state, and federal levels. PHLI alumni have played critical roles in forming and developing state and regional public health leadership institutes. Seven state and seven regional institutes currently serve thirty-eight states. Five state or regional institutes serving five additional states are under development. As of July 2001, over 2,250 participants had graduated from or were currently enrolled in a state or regional public health leadership institute. In 1994, the institutes formed the NLN with support from CDC/PHPPPO through a cooperative agreement with the Association of Schools of Public Health (ASPH). Managed by Saint Louis University School of Public Health, the network's mission is to promote linkages among the state, regional, and national public health leadership institutes and other leadership programs.

At the federal level, the CDC/Agency for Toxic Substance and Disease Registry (ATSDR) Leadership and Management Institute (LMI), established in 1999, also has adopted aspects of the PHLI model and curriculum. Other important public health leadership development programs include the Illinois Institute for Maternal and Child Health Leadership, developed by the University of Illinois Chicago School of Public Health, and the Public Health Education Leadership Institute sponsored by the Association of State and Territorial Directors for Health Promotion and Public Health Education (ASTDHPPE), the Society of Public Health Education (SOPHE), and the Society of State Directors of Health, Physical Education and Recreation (SSDHPER). In California, a public health program-specific institute, the

WIC (Special Supplemental Nutrition Program for Women, Infants, and Children) Leadership Institute (WICLI) was launched in 2002, modeled after PHLI by Health Leadership Consultants, Inc. Together, the national, state, and regional public health leadership institutes; federal and other public health leadership programs; the NLN; and the Public Health Leadership Society are having a major influence on public health leadership.

The importance of evaluation

Experience in developing and managing PHLI afforded many opportunities to both see and hear that the institute was improving participants' skills and effectiveness as leaders. Observations indicated that alumni were increasingly assuming leadership positions in public health professional organizations statewide and nationally. The Public Health Leadership Society had grown into a visible, respected national network of public health leaders having a tangible influence on the field of public health.

Early PHLI evaluation activities could be described as primarily formative or process oriented, although they included some assessment of short-term impact and described positive influence on participants' leadership skills and actions.¹¹ Evaluations of the 1996 to 1997 and 1997 to 1998 PHLI cohorts assessed whether measurable changes among the scholars could be attributed to the program. These evaluations showed that the PHLI program was meeting its objectives and having an important impact on scholars' leadership skills.^{12,13} All these evaluations were based on year-end (short-term) survey data.

In 1998, near the end of a second Cooperative Agreement with the CDC, the decision was made to invest in a comprehensive evaluation of PHLI and its impact. It was deemed important to evaluate the impact of PHLI on participants, their organizations and communities, and the field of public health over the eight-year history of the program through a retrospective evaluation design. The growing investment by many in public health leadership development programs made the idea of such an evaluation compelling. The evaluation was designed and administered in 1999, and a preliminary summary report of findings was disseminated to colleagues in July 2000. This article presents the evaluation design and findings to the field of public health. It is hoped that these findings contribute to the evidence that

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leadership can be learned, that leadership training does make a difference, and that it can, indeed, be evaluated.

Methods

To begin, the institute's mission, goals, objectives, program model, and major curriculum components were systematically examined as background for conceptualizing the evaluation. To provide expertise in the design and implementation of an effective evaluation, the services of evaluation consultants were engaged. (The primary evaluation consultant served as second author of this article.) The evaluation was designed around the institute's theory of action (Figure 1). The evaluation also was informed by the PHLI evaluation activities mentioned previously. Finally, the evaluation design drew on leadership training evaluation literature^{2,3,14,15} and literature on social network development among distance learners.¹⁶

A mixed-method approach was used to obtain a variety of perspectives on the cumulative impact of PHLI, both on participants and on the field of public health. First, a retrospective evaluation questionnaire was designed. Self-report responses to open- and closed-ended survey questionnaire items were collected from 438 PHLI alumni from cohorts 1 through 8 (1991–1999). Finally, in-depth interviews were conducted on the impact of PHLI with former PHLI participants, faculty, staff, funders, and leaders in the field of public health. A total of 18 respondents were interviewed for this qualitative component of the evaluation. In summary, 456 individuals participated in this study.

Survey data collection

The survey questionnaire was designed to collect information from alumni cohorts 1 through 8 (1991–1999) to better understand their PHLI experience and its impact on their leadership effectiveness at the personal, organizational, and community levels as well as the field of public health.

Retrospective evaluation survey development

Drawing on the program model and the review of PHLI curriculum components, a structured, detailed outline of the domains of interest was created. These domains included

- Demographic and other background information regarding participants and their current professional roles
- Participant assessments of PHLI impacts on their effectiveness in the five curriculum domains of personal leadership development, leadership in training others, organizational leadership, community leadership, and communication skills
- Impact of PHLI on participants' professional networks
- Impact of PHLI on participants' ongoing learning
- Participant professional activities in the wider field of public health and its relationship to PHLI
- Descriptions of a successful leadership accomplishment linked to the PHLI experience and PHLI-linked skills used to deal with challenges or problems encountered working toward the accomplishment

Open-ended questions were developed to obtain information on successful leadership accomplishment and related skills. Precoded items were used to tap all other domains, using a variety of formats including 3- and 5-item Likert scales and "yes-no" questions. Care was taken to vary question formats to maintain respondent interest.

To assess participant ratings of PHLI impacts over the five curriculum domains, five multi-item scales were developed. Multi-item scales were constructed to tap these curriculum domains because single-item measures of these complex constructs were unlikely to have sufficient reliability and validity, and they would not measure these constructs with sufficient depth. To guide respondents through the process of reflection, each item in these domain scales included two subquestions. First, participants reported "improved" or "not improved" for four to nine component skills. For skills reported as "improved," participants also rated the impact of the improvement on their leadership effectiveness. Coefficient alphas were calculated for each of these scales to assess internal consistency reliability. A sixth scale assessed involvement in activities for the field of public health and the degree to which this could be ascribed to the PHLI experience.

Content validity was assured through detailed review of the curriculum materials for multiple years of PHLI, reviews of draft items by staff responsible

for PHLI, and field testing with PHLI alumni as described below.

A formal pretest of the questionnaire and draft cover letter was conducted with a selected group of alumni during August 1999. The purpose of the pretest was to obtain feedback on question clarity, gain input on the format, and assess time needed to complete the entire survey and particular sections. Two different types of question formats were tested with these respondents for the set of items measuring the impact of the PHLI training on the leaders' organizations. Also provided was a brief Pretest Debriefing Form on which alumni responded to questions on their experience of completing the questionnaire.

At the completion of pretest data collection, items that were burdensome or not essential to the evaluation were deleted from the questionnaire to shorten administration time, and some questions were reworded to clarify intent. In addition, the order of the items was revised to improve the logic of the question flow. Because the questionnaire was substantially revised after the pretest, a small pilot test was subsequently conducted to ensure that the administration time was adequately shortened and to test the revised items.

Sample

The sampling frame for the survey was 438 PHLI alumni comprising cohorts 1 through 8 (1991–1999) of PHLI scholars. (A total of 444 scholars participated in cohorts 1 through 8 of PHLI, however, six scholars were not included due to death or previous loss to

follow-up.) The yearly cohorts ranged from 50 to 60 scholars each (see Table 1).

Survey data collection

The survey administration was conducted by mail beginning September 15, 1999 and ending December 31, 1999. A 67% rate of response was achieved (297 returned the survey). These results were obtained using the total design method advocated by Dillman¹⁷ for maximizing response rates. Each questionnaire was accompanied by a letter requesting survey completion and included a self-addressed, postage-paid envelope to encourage participation. All alumni were mailed a reminder postcard one week after the initial survey mailing. Over the next two months, the entire survey package was re-mailed twice to those not responding to earlier mailings. In addition, all change-of-address notifications received were immediately followed up with a new mailing to the correct address. Finally, during early December reminder telephone calls were placed to a random subset of non-responding alumni. The confidentiality of responses was preserved by the evaluation consultant's mailing, receiving, and tracking the survey questionnaires from a location separate from the PHLI office, and destroying the sole document linking the questionnaire identification numbers and the list of PHLI alumni at the completion of the survey.

Data management

The evaluation consultant reviewed each returned questionnaire for items inadvertently skipped by the

Table 1

Survey sampling frame employment setting

Sector of employment	Total enrolled group of PHLI scholars (N)	Total enrolled group of PHLI scholars (%)
Local government	178	40
State government	80	18
Federal government	62	14
University	31	7
Other	93	21
Total	444	100

Source: Data from updated Program Administrative Records.<AQ11>

[AQ11]

respondent. Approximately 10% of all questionnaires received contained two or more missing items due to respondent error. When this occurred, the skipped questions were photocopied and returned to the respondents with a letter and postage-paid envelope requesting the completion of the missed items. A majority of the alumni receiving this request responded by completing and mailing the originally missed items.

Because the questionnaire contains skip instructions so that respondents would not be asked questions that are irrelevant to them, there are many “legally” skipped items in the data set. However, because of the procedure used to retrieve data for inadvertently skipped relevant questions, the data set is substantially complete.

Using a procedure known as double entry verification, all questionnaire data were entered twice, the resulting two data sets compared, and inconsistencies resolved by referring back to the hard-copy questionnaires. Open-ended items in the survey were coded by themes using a qualitative data analysis methodology described by King et al.¹⁸ This methodology facilitated the identification of common themes across the responses of those interviewed.

Data analysis

[AQ1] Data were analyzed using the SPSS statistical package[AQ1]. Analyses included frequency distributions, cross-tabulations, chi-square tests, reliability coefficients, and scale means.

Interviews with knowledgeable informants

An important and valuable component of the evaluation involved conducting in-depth interviews

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with public health leaders as well as those responsible for funding and managing the institute. These interviews, conducted by the evaluation consultant, collected observations on the evolution of the institute and the major impacts of its eight years of operation on the field of public health. Recommendations on future national institute directions for public health leadership training were sought during some interviews.

Sample

A total of eight interviews was conducted from three[AQ2] distinct groups:

1. PHLI management and faculty (internal perspectives): $N = 6$
2. Knowledgeable and respected leaders (from public health academia and the private health sector) who did not participate in PHLI, referred to as observers from the field (external perspectives): $N = 4$
3. Staff of the CDC, the funding agency for PHLI (funder perspectives): $N = 4$
4. Participants in PHLI (to obtain further elaborations from several scholars on survey responses regarding leadership accomplishments and challenges): $N = 4$

[AQ2]

Interview data collection

Although the interview schedule was customized for each of the three[AQ3] subgroups, the questions substantially overlapped across subgroups. All questions were open ended in format. Questions focused on PHLI goals across the eight years of delivery; the relative value of training components; challenges and barriers that emerged; recommendations for future leadership training; key insights gained by faculty and participants; and impacts on faculty, participants, and the field of public health.

[AQ3]

The 18 interviews were conducted by telephone and lasted less than 30 minutes each. The initial contacts were by letter, followed by phone and e-mail communication to set appointments for the interviews. All the people contacted consented to be interviewed. Written transcripts of each interview were created.

Data analysis

Using a code-building methodology described by Miles and Huberman,¹⁹ matrices were employed

[AQ4] to summarize the interview results for each of the four[AQ4] respondent groups listed above.

Results

Results from the retrospective evaluation survey (including information from open- and close-ended items) and from the interviews with knowledgeable informants are presented below.

Survey completion rate

Between 49% and 87% of each year's cohort completed the survey, with an overall completion rate of 67% of all enrollees across all years, which was 68% (Table 2) of those surveyed. (Six enrollees were not surveyed due to death or loss to follow-up.)

Response rates across respondent groups

Chi-square analyses were conducted to assess several questions. First, to assess potential bias, tests were conducted to examine whether responding to the survey varied consistently more than would be expected by chance depending on the scholar's cohort, gender, or employment sector (local, state, or federal employee, or other type of employee). The results indicated that cohorts 4 and 5 were less likely to respond, and cohort 8 was more likely to respond (Table 2). In addition, scholars from state public health organizations were more likely to respond than scholars from other sectors. (The completion

rate for the state sector was 85%, while the overall response rate for all sectors was 67%.)

Background characteristics of survey respondents

Slightly more than half of the respondents were male, and 83% of respondents were white (non-Hispanic). Most were between the ages of 40 and 59 at the time of survey completion. Seventy-six percent (76%) of the respondents were government employees, with 40% at the local level, 23% at the state level, and 13% at the federal level of government. The next largest category was university (6%), with the remaining alumni fairly evenly distributed among other employment categories (Table 3).

Seventy-one percent of those attending PHLI reported that their roles had broadened greatly or somewhat subsequent to the PHLI year. Similarly, a full 93% of scholars reported being satisfied with their current professional role.

Reliability of scaled survey items

Scale summary scores were created for each of five domains (personal development, leadership in training others, organizational leadership, communications skills, and community leadership) to calculate reliability coefficients and to obtain summary measures of PHLI impact on leadership effectiveness. Results for Parts A and B of each item were combined to create a single score for each subitem. Means were calculated for each scale to serve as

Table 2

Response rate

Cohort year	Number of enrolled scholars in cohort	Number of scholars surveyed	Number responding to the survey	Percentage of those surveyed responding
Year 1 (1991–92)	53	53	35	66
Year 2 (1992–93)	50	49	32	65
Year 3 (1993–94)	58	58	40	70
Year 4 (1994–95)	57	56	28	50
Year 5 (1995–96)	55	52	32	62
Year 6 (1996–97)	59	59	44	75
Year 7 (1997–98)	52	51	34	67
Year 8(1998–99)	60	60	52	87
Total	444	438	297	68

Table 3

Background characteristics of survey respondents

Questions	Response Categories	<i>N</i>	Percentage
Gender	Male	167	56
	Female	130	44
Ethnicity	African American	23	8
	Native American or Eskimo	2	1
	Asian or Pacific Islander	6	2
	Latino/Hispanic	13	4
	White (non-Hispanic)	247	83
	Other	5	2
	<i>Missing</i>	1	
Age	30–39	12	4
	40–49	129	43
	50–59	125	42
	60+	31	10
Setting of current primary employment	Government		
	Local	119	40
	State	69	23
	Federal	38	13
	Health systems or managed care	15	5
	University	19	6
	National organization	6	2
	Consultant	9	3
	Retired	9	3
	Other	13	4
Total		297	99

Table 4

Scale descriptive statistics and reliability coefficients

	<i>N</i>	Means	Standard deviations	Reliability coefficients (alphas)
Scale 6	293	2.6041	.626	.67
Scale 7	291	2.50	.75	.74
Scale 8	292	2.54	.92	.73
Scale 9	286	2.50	.75	.86
Scale 10	294	2.53	.89	.84

summary measures, and coefficient alphas were calculated to assess reliability. The means, standard deviations, and coefficient alphas for the five scales are shown in Table 4.

The results of the coefficient alphas indicate good scale reliability, and they provide evidence that the subitems comprising each scale are measuring components of the same construct. The similarity of the means and relatively low standard deviations across the five scales indicate that PHLI alumni reported benefiting fairly equally across the five domains of curriculum focus.

Personal leadership

Retrospective evaluation survey

The reported impact of personal leadership skill improvement on leadership effectiveness is shown in Figure 2. Examples of personal leadership accomplishments linked to the PHLI experience included the following:

“Through PHLI I realized how important and critical this work [public health] is and recommitted myself to its success.”

“[I am] better prepared and organized for the many crises that I face in my position”.

“Skills learned in creating a vision, missions and subsequent strategies have been used over and over again.”

“It [PHLI] provided a basis from which to grow.”

“[I have a] better understanding of myself and the need for balance in my life.”

“The PHLI experience was very significant and timely for me. I was a new health officer when I began, and it helped shape my leadership and transformation of a large local health department.”

In describing PHLI-linked skills used to deal with challenges or problems encountered working to-

ward the leadership accomplishment, respondents noted “personal leadership” skills such as visioning, “thinking outside the box,” risk taking, understanding one’s own personality and leadership style, and scenario building.

Interviews with knowledgeable informants

When asked to describe the program’s meaning to participants, PHLI staff and faculty provided descriptions such as a “reaffirming, confidence-building experience that is energizing” and an “important opportunity [for public health leaders] to be reflective.” One interviewee stated that a key impact of PHLI on participants was “developing concepts of leadership that go beyond the conventional hierarchical construct. As a field, public health is very fluid. . . . Multidisciplinary . . . scholars leave PHLI with a broader definition of what public health is, broader perspectives, and knowledge of what kinds of resources help you do your job better.”

CDC staff agreed that the PHLI experience was highly prized by participants. One interviewee stated: “For some people, this is a life-changing experience, a high point in their career, professionally and personally. It can give real meaning to a career, looking at where one has been and where one is going.”

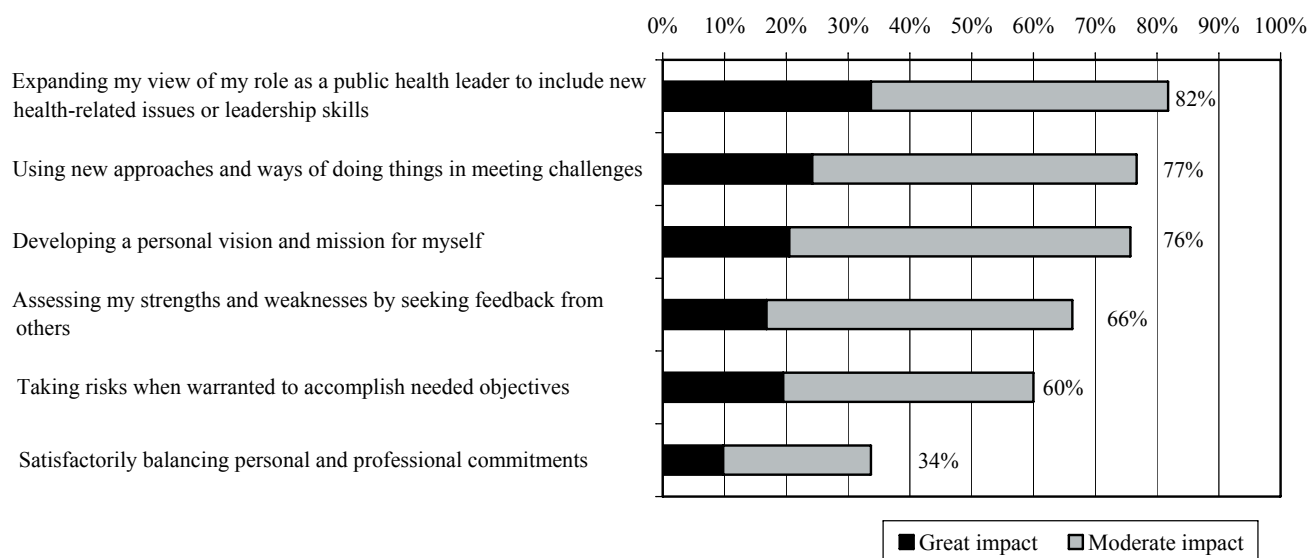


Figure 2. Impact on scholars’ personal leadership effectiveness of improved skills (N = 297).

Three of the four observers from the field believed that attending PHLI resulted in broadening of the scholars' leadership skills and styles. To quote one interviewee, the participants had "gained skills in leadership that had left them forever changed by the experience." Another stated: "They [PHLI alumni] have more insight and confidence in dealing with issues they thought were unique to their own situation." All four interviewees from this group believed that the scholars were significantly impacted by PHLI.

Organizational leadership: Retrospective evaluation survey

Figure 3 shows reported impact of improved leadership in training others on scholars' organizations. Figure 4 shows impact of improved organizational leadership skills on scholars' organizations. Examples of organizational improvements provided by survey respondents included[AQ5]:

Creation of a more effective management team

Reorganization of the organization—providing a framework that integrates science, service, and leadership

Change from an agency that administered categorical programs to see a broader core functions and essential services role

Fashion an integrative rather than a programmatic approach to public health

Division in the organization now more involved in creative solutions and change

Change in organizational structure of state health department to increase flexibility and eliminate dysfunctional units

Change in organizational structure to improve effectiveness in the ten essential public health functions

Develop a more clear-cut mission and vision for the organization and involving employees at all levels in creating these

Community leadership: Retrospective evaluation survey

The reported impact of improved community leadership skills on the scholars' communities is shown in Figure 5. Survey respondents described a variety of leadership accomplishments related to community building, partnering, and collaboration:

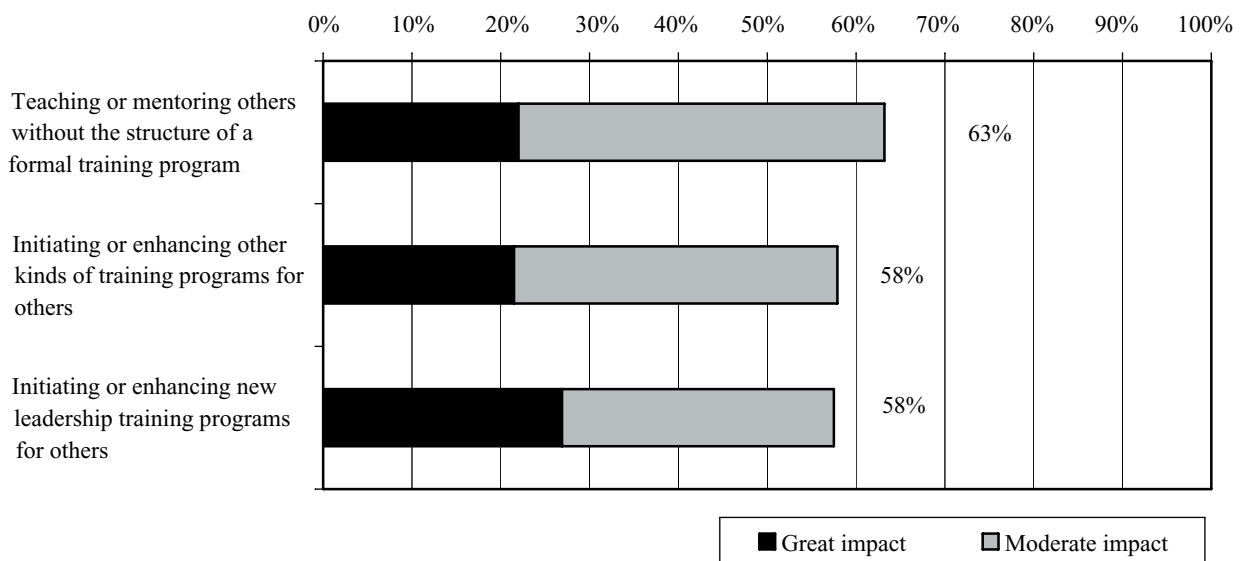


Figure 3. Impact on scholars' organizations of improved leadership in training others (N = 297).

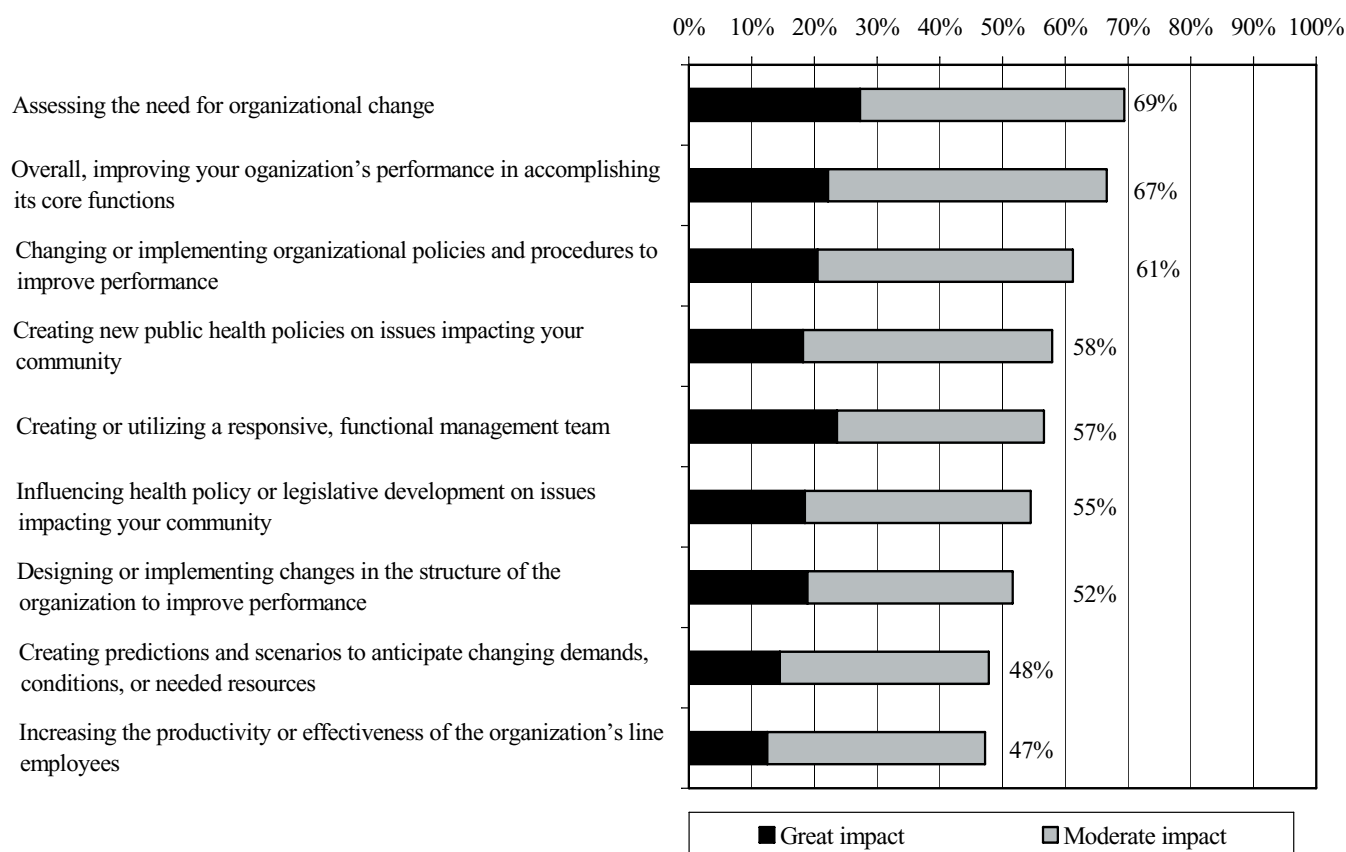


Figure 4. Impact on scholars' organizations of improved organizational leadership skills (N = 297).

"[We] developed a very successful collaboration of community agencies that has created a five-year strategic plan for public health in the county. [This was my PHLI learning project.]"

"[There is a] shift away from insular attitude to one where all community health assets [hospital to nursing homes to service clubs] are partners or potential partners for public health activity."

"[There is] enhanced collaboration between Medicaid and public health [within the state]."

"[There was] formation of a state association of local public health leaders."

"Sustaining a broad-based Turning Point state partnership for almost three years."

"Developing a successful coalition of persons with distinctly different views on the value of firearms to come together to work for gun control."

"Serving as a catalyst and neutral convener for a community health assessment and improvement program."

Communication skills: Retrospective evaluation survey

The reported impact of improved communication skills on scholars' leadership effectiveness is shown in Figure 6. Examples of leadership challenges to which participants applied PHLI-linked communications skills included: staff resistance, accountability of team members, overcoming reluctance to change in the organization, lack of trust in a health department, special interest group opposition, communicating scientific information to the press, communicating with external stakeholders, communicating in low-trust situations, and lack of understanding of public health in the legislature.

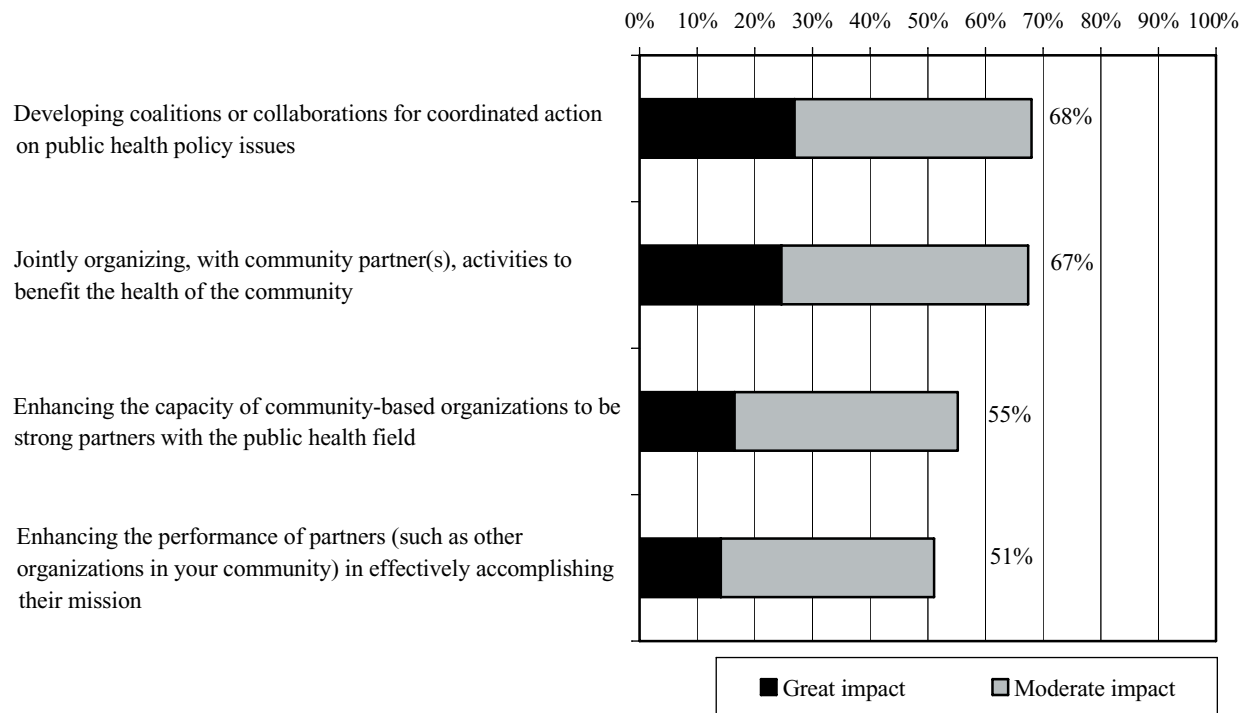


Figure 5. Impact on scholars' communities of improved community leadership skills (N = 297).

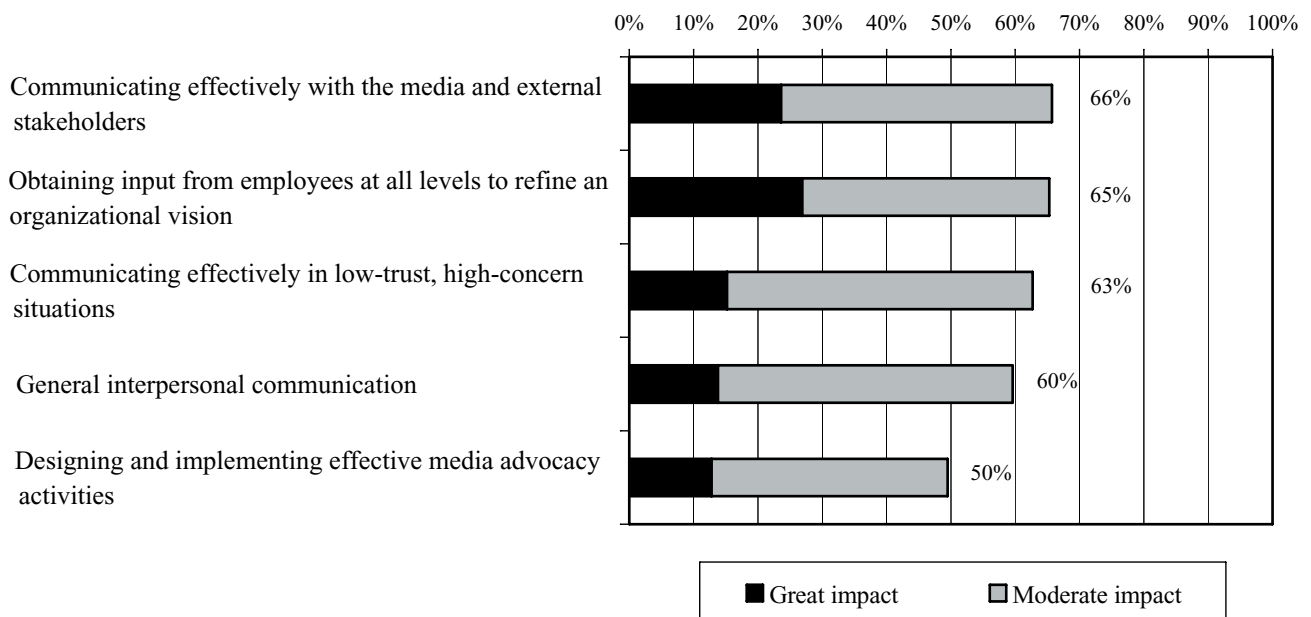


Figure 6. Impact on scholars' leadership effectiveness of improved communication skills (N = 297).

Respondents reported that their current professional networks were enhanced as a result of PHLI participation.

Networks and relationships

Retrospective evaluation survey

Ninety-four percent of respondents reported that the collegial relationships formed during the course of PHLI participation had been “meaningful.” The vast majority of respondents (82%) reported that their current professional networks were enhanced as a result of PHLI participation. A majority (57%) of respondents reported that the professional relationships formed either directly or indirectly through their PHLI participation had a moderate to great impact on their subsequent effectiveness as public health leaders. Forty percent (40%) reported that these professional relationships had a moderate or great impact on their subsequent careers, and a majority (54%) reported that these relationships had a moderate or great impact on their personal growth.

Interviews with knowledgeable informants

Observers from the field noted that participants’ common experiences as scholars created a shared identity. As one observed, “PHLI resulted in the building of a group [PHLS] with a common bond, familiar with each other and with issues and problems across the country.”

Ongoing learning and participation in other leadership development programs

Forty-six percent of respondents reported an increased amount of professional reading. The new publication most frequently mentioned was the *Journal of Public Health Management and Practice*.

Nearly half (42%) of the respondents reported that they had attended other leadership training since attending PHLI. Respondents identified a variety of leadership development programs or activities, including the State Health Directors Executive

Mentoring and Peer Consultation Program managed by CHLP. Others mentioned programs or seminars offered by the private sector, counties or civic organizations, or disciplines and professional organizations within public health. Finally, respondents also noted participation in their own alumni network (PHLS) activities such as the annual program. (The State Health Directors Executive Mentoring and Consultation Program, directed by CHLP, is one of several services offered to new state health directors by the State Health Leadership Initiative funded by The Robert Wood Johnson Foundation and directed by the National Governors Association Center for Best Practices. Other partners include the Association of State and Territorial Health Officials, John F. Kennedy School of Government at Harvard University, and Cairo & Associates.)

Impacts on the field of public health

Retrospective evaluation survey

Figure 7 shows respondents’ involvement in activities for the field of public health as a result of PHLI and its alumni activities. In describing a leadership accomplishment linked to PHLI, 13 respondents cited initiation or development of a state or regional public health leadership institute. One respondent, who founded a state public health leadership institute, added that the critical mass of PHLI alumni in the state has been essential to making other “meaningful, lasting change.”

Interviews with knowledgeable informants

Three of four PHLI management and faculty cited impacts on the field of public health centered around the creation of a core of leaders communicating and working together to promote the public health agenda, resulting in advances in the field of public health. Two of four CDC staff members stated that the most significant impact of PHLI on the field of public health was the creation and funding of state and regional public health leadership institutes, including adoption of the year-long curriculum model. Another two pointed to the impact of PHLI alumni (through their alumni network, the PHLS) on national public health policy issues such as public health workforce development.

Three of four observers from the field also noted the initiation or promotion by PHLI alumni of state

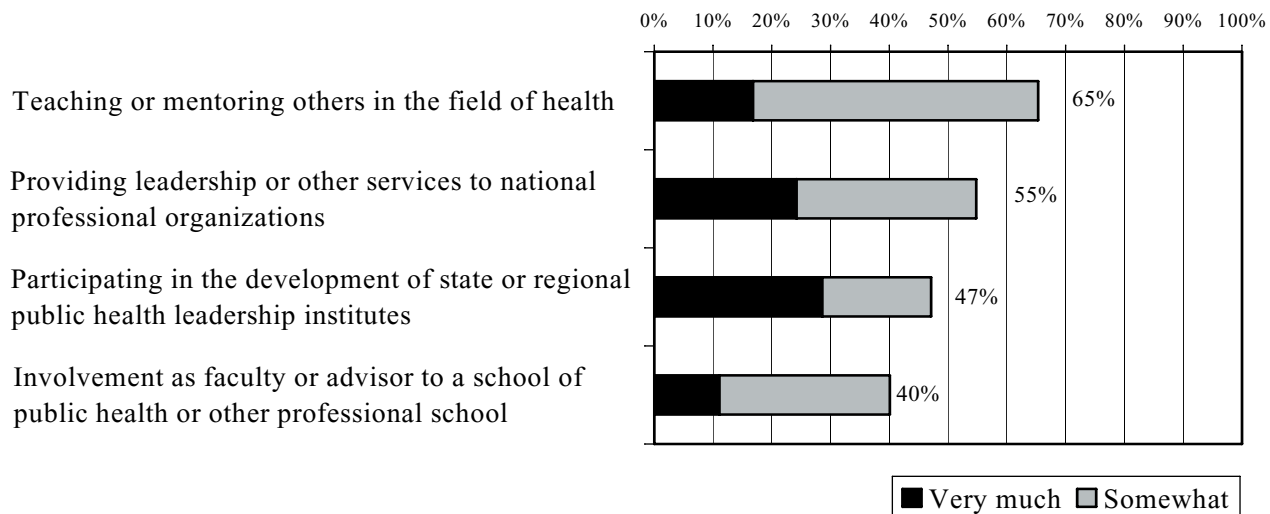


Figure 7. Scholars' attribution to PHLI of their involvement in activities for the field of public health (N = 297).

or regional leadership training institutes utilizing the PHLI model. One noted that scholars had “lobbied effectively to get increased funding for training the public health workforce.” All four acknowledged the scholars' involvement in the creation of new partnerships and coalitions. They emphasized that one of the most significant impacts of the program was the creation of a network of public health leaders who could act jointly to influence the public health agenda (PHLS). One noted that the creation of a network of PHLI alumni over time had “rejuvenated a sense of optimism” in the field of public health leading to a “more proactive stance in national professional organizations.” Another observed: “PHLI made them [the participants] more effective in their own agencies and on the national scene.”

Differential survey results by employment sector

Chi-square tests were used to assess whether PHLI scholar reports of skill or leadership improvement due to PHLI varied by employment sector more than would be expected by chance. The results were positive for 15 out of 27 tests conducted (Table 5). In general, these analyses show that state government employees, followed by local government employees, reported the highest percentage of ages of skill or leadership improvement. Next were scholars

employed in “other” settings, followed by federal government employees.

Discussion

These evaluation results demonstrate that PHLI had a measurable, positive impact on scholars' leadership effectiveness at the personal, organizational, and community levels as well as on the field of public health. A majority of respondents reported that the institute had a noticeable impact on their leadership effectiveness. These results were further substantiated by respondents' examples of leadership accomplishments and organizational improvements linked to their PHLI experience. Furthermore, respondents reported enhanced professional networks through participation in PHLI and increased commitment to life-long learning and the mentoring and training of others. The qualitative findings also reveal that leadership development is inherently individual, interpreted and applied in multiple ways. The results speak to the overall success of the institute's model in enhancing the leadership capacities of senior public health leaders.

Items for which the largest percentages of participants reported especially high or low PHLI-related

Table 5

Chi-square analyses results: Items with significant variation by employment setting in percentages of alumni reporting skill or leadership improvement

Item content (improved/not improved)<AQ12>	Setting of employment (percent)			
	Local N = 118	State N = 68	Federal N = 39	Other N = 71
Expanding view of role	91	94	81	82
Using new approaches	87	90	66	87
Communicating effectively w/ media	87	80	68	71
Designing and implementing media advocacy activities	77	67	46	67
Initiating leadership training	73	86	60	61
Initiating other kinds of training	78	82	76	56
Teaching or mentoring others without formal program	78	84	81	63
Assessing need for organizational change	92	85	75	82
Creating a responsive management team	80	86	69	58
Increasing the organization's productivity	71	73	66	49
Improving overall performance of organization	92	94	72	73
Influencing health policy	82	75	53	70
Creating new public health policies	83	81	46	70
Collaborating for coordinated action	87	86	76	72
Jointly organizing with community partners	90	83	62	74

impact on leadership effectiveness are discussed below.

Personal leadership impact

Eighty-two percent of respondents reported an impact on personal leadership effectiveness of an expanded view of their role as a public health leader (Figure 2). Other studies have shown changes in role perception among participants in leadership development programs.^{2,4} The high levels of professional responsibility already held by the scholars, coupled with their desire to further improve their leadership ability, may have led to readiness for a change in role perception. Seventy-seven percent reported an impact on personal leadership effectiveness of using new approaches and ways of doing things in meeting challenges (Figure 2). Over time participants learned more about their needs and desires to think “out of the box,” to generate new ideas and new approaches, and to expand their vision of their leadership role in public health. Once implicit objectives about these skills became more explicit as time went on. During

the institute year, many scholars received validation and peer support for their current, as well as new, “out-of-the-box” ideas. They commented on numerous occasions about the value of the new and expanded perspectives they were gaining from participating in a community of experienced peers that was national in scope. All this seems to have contributed to an expanded sense of leadership capacity. In addition, PHLI alumni engaged in the development of state and regional leadership institutes, and programs are explicitly including skills in thinking “out of the box” in their curriculum designs.

Encouraging reflection about and strategies to achieve balance in one's life emerged in the 1990s not only in the management literature²⁰ but also at the institute. Again not an initial curriculum goal, it began to be presented and emphasized in the second half of PHLI's tenure. Of interest is that 34% of respondents reported that PHLI helped them balance personal and professional commitments. Given that this was a newer curriculum topic—and one that is difficult to measure because of its subjectivity

to personal values, opportunity, and choice—this result may actually be important and of interest to leadership development designers. This issue of balance comes up repeatedly and was emphasized as an important issue by the women public health leaders profiled in *Journey to Leadership: Profiles of Women Leaders in Public Health*.²¹

Organizational leadership impacts

Of particular interest is the reported impact on participants' organizations of skill improvement in four[**AQ6**] areas: assessing the need for organizational change (69%); improving their organization's performance in accomplishing its core functions (67%); and creating or utilizing a responsive, functional management team within their organization (57%; Figure 4). Change leadership was emphasized in the curriculum throughout its history. The organization in which each scholar worked was intended to benefit from his or her enhanced leadership, and the examples given during the year by the scholars (often explained in their leadership stories/projects) provided even more detail.

Community leadership impacts

Figure 5 presents a high percentage of scholars reporting impact on their communities in the following areas: development of coalitions or collaborations (68%) and enhancement of the capacity of community-based organizations (55%). This finding is of special interest given that not all respondents were from local and state government where this type of impact would be most commonly experienced. The emphasis in this curriculum area grew during PHLI's history, culminating with an emphasis on collaborative leadership and community building, two leadership skill areas in high demand in public health today.

Communication skill impacts

PHLI chose to emphasize an important set of communication skills during its tenure: listening, dialogue, effective media relations and presentations, media advocacy, and communication in high-risk, low-trust situations. Respondents reported high levels of impact on leadership effectiveness (Figure 6) from these improved skills: communicating effectively with the media and other external stakeholders (66%) and communicating effectively

in low-trust, high-concern situations (63%). We believe these skills are of great importance to public health leaders and that high-quality curricula need to be further developed and disseminated. These are complex skill areas to address because they require opportunities for application and practice that are especially needed today with the heightened focus on "preparedness and protection."

Networks and relationships

The evaluation results also clearly underscore the importance of the relationships and networks established as a result of PHLI. Ninety-four percent of respondents described the relationships formed in the course of participation in PHLI as meaningful. Fifty-seven percent described positive impact from the professional relationships formed through PHLI on their effectiveness as public health leaders. The importance of supportive relationships and networks for leadership development has been discussed in other leadership evaluation studies and reports.^{2,4} The PHLI model supported network formation through a number of activities such as learning teams and peer consultation.

The development and sustenance of the PHLS by PHLI alumni from 1992 to the present are consistent with the evaluation's findings that this leadership development model has had a significant impact on network formation in the field of public health. For many alumni, PHLS transformed the year-long leadership development experience into one of life-long learning and joint action on public health issues. The knowledgeable and respected leaders who were interviewed also viewed the formation of networks among alumni as the institute's most important impact. The results from this study and the anecdotal comments received have exceeded expectations about the importance of a national network of PHLI

PHLS transformed the year-long leadership development experience into one of life-long learning and joint action on public health issues.

alumni. There are many lessons learned from this experience, and they are being integrated in many of the state, regional, and other new public health leadership ventures emerging around the country.

Impacts on the field of public health

The survey and interviews emphasized a number of key impacts of PHLI on the field of public health. The scholars reported a high degree of involvement in the following activities for the field resulting from PHLI participation: teaching/mentoring colleagues in the field (65%; Figure 7) as well as within their organizations (63%; Figure 3); providing leadership to national professional organizations (55%); and participating in the development of state or regional PHLIs (47%). Observers from the field additionally commented on specific impacts they have observed about the effectiveness of the alumni network in areas such as public health workforce development, lobbying for support for state and regional PHLIs, and providing more proactive leadership to the national professional organizations. PHLI has expanded the meaning of leadership in public health from leading an agency to being a responsible agent for the public health of communities. It has resulted in a national network of trained leaders who have acted together in a way that is influencing the national agenda.

Consistency of curriculum domains

An important finding that will be of interest to future leadership program designers is that respondents reported fairly equal benefit across the major curriculum domains (personal development, leadership in training others, organizational leadership, communication skills, and community leadership). These data speak to the fact that a comprehensive and effective leadership development program should consider including (in a customized way for its target audience) a version of these core domains.

Survey Limitations

There are a number of potential limitations to the approach used. First, some alumni had completed PHLI as long as eight years prior to the study, thus risking recall bias when asking them to report its impact. This was minimized by beginning the questionnaire with specific questions regarding their PHLI

training, including the years they were enrolled, their engagement in specific program components, and their employment and professional role at that time and now. These initial items served as memory aids, thus helping assist respondents in rating the various components of their PHLI training in the remaining questionnaire items.

A second limitation to the study is that all the data were self-reported by the alumni. Thus, there is danger of response bias (i.e., a lack of objectivity in reporting one's own learning and accomplishments). For purposes of this evaluation, however, the alumni themselves would have the best insight as to the usefulness of the PHLI experience to their own work, organization, and community.

Ideally, one would supplement the insights of the alumni with data collected from supervisors, peers, and others regarding their assessment of that person's leadership before and after training (as in a 360° evaluation), and with data consisting of other measures of improvements in organizational performance. In addition, in conducting evaluations it is optimal to compare the performance of a group receiving an intervention with a control group that had not received the intervention, or who had received a different intervention. Although knowledgeable external observers were interviewed, data were not collected from each scholar's colleagues, other measures of improvements were not obtained, or a control group was not included due to funding constraints.

There was concern that alumni would feel constrained to report positive impacts to a PHLI staff-sponsored evaluation. This potential source of bias was minimized in two ways. First, alumni were assured that their answers would be confidential, and the evaluation consultant administered the survey to ensure that confidentiality was maintained. Second, alumni were asked in the cover letter to give honest feedback to PHLI to assist in future planning, an important value to the organization.

After attending PHLI, nearly half the scholars participated in additional leadership development activities. Thus, caution is recommended regarding ascribing the reported growth in leadership skills and resulting impacts to PHLI in isolation. Other programs attended, plus the independent maturation of the scholars over time subsequent to PHLI, may have had a significant independent influence on

these leadership improvements as well. To minimize this potential source of bias, respondents were asked to estimate, to the best of their ability, the degree to which they ascribed their skill improvement specifically to PHLI.

The introduction of bias from several sources was investigated. The results of the chi-square tests indicated that cohorts 4 and 5 were less likely to respond, and cohort 8 was more likely to respond. Separate analyses to examine potential variation by cohort in results for specific questionnaire items revealed cohort-related differences for three items only (general interpersonal communication, participating in the development of state or regional leadership institutes, and providing leadership or other services to national professional organizations). It is therefore unlikely that the differential response by cohort biased the evaluation results overall.

Chi-square tests also revealed that state employees were both more likely to respond to the survey and, as shown in Table 5, more likely to have rated their experience positively. These results raise caution regarding whether the survey results perfectly represent the views of all PHLI alumni, including those who did not respond to the survey. While scholars from different employment sectors (local, state, and federal government, etc.) report differential levels of skill improvement, there were only three (out of eighteen items) in which fewer than 50% of a specific employment group reported training impacts.

This article has discussed a number of potential sources of bias. These potentially biasing factors have been mitigated to a substantial degree by the good response rate (67%), and by the care taken to minimize its impact as the survey was designed and implemented and as the results were analyzed and interpreted.

Evaluation of Best Practices

Training programs are inherently challenging to evaluate because of the difficulty of attributing changes in behaviors to a single intervention, even if it unfolds over time. Further, it is difficult to ascribe organizational changes and other kinds of impact to an individual's changed leadership style. This is precisely the kind of evaluation that is needed, however, for its rigor and the depth of insight it affords. Only over time do the insights and skills gained

through participation in a leadership development program ripen and find increased opportunities for application. We must deepen our understanding of how public health leadership training is optimally designed and delivered for the best possible outcomes for participants and the institutions they impact. Though it was challenging to execute, this evaluation provides further understanding of these important issues.

Conducting the retrospective evaluation provided many other learning opportunities. Others contemplating retrospective evaluation are encouraged to consider these best practices:

- Develop a clear purpose and goals for the evaluation; envision what successful outcomes would look like.
- Anchor your evaluation questionnaire in training theory and survey design best practices.
- Approach your evaluation from multiple angles—combine qualitative and quantitative approaches.
- Design an attractive, user-friendly questionnaire that can be completed in a reasonable time frame to achieve a high response rate; follow up diligently.

Conclusions

So, does leadership training make a difference? Based on this evaluation, the answer is an unequivocal yes. Is it worth the investment? Again, the findings lead to an affirmative response. The CDC/UC PHLI, as an example, has demonstrated its value and contribution not only to the individual participants, but also to the field of public health. This study has forged new ground in applying a solid evaluation design and methodology to the difficult task of retrospective evaluation of a leadership training program. It offers an approach that others may learn from, as together this collective leadership development work is shared and disseminated more fully to investors and to colleagues, both nationally and internationally. It is hoped that this article will inspire current and potential funders to continue and expand their support for leadership training. It also is hoped that current leaders will not only continue to work for improvements in the public's health but also identify and mentor the next generation of leaders in the 21st century.

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