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Linking learning methods to outcomes in public health leadership development

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Abstract

Purpose – The purpose of this research is to present evaluation findings from the National Public Health Leadership Institute (PHLI) regarding how the curriculum's learning methods work singly and together to produce outcomes for learners and their organizations.

Design/methodology/approach – Six months after graduation from PHLI, four recent cohorts of PHLI graduates were asked to report overall reactions to PHLI by using an online survey. The survey consisted of quantitative questions about key leadership behaviors taught in the program and the usefulness of PHLI's five learning methods as well as qualitative questions about changes in understanding, skill, practices, and outcomes.

Findings – The evaluation survey yielded a 66 percent response rate ($n = 133$). PHLI's learning methods are interrelated and lead to such outcomes as changed leadership understanding, knowledge and skill development, increased confidence, increased self-awareness, leadership practice changes, and organizational results. The learning project was strongly associated with development of collaborations, whereas assessment tools and coaching were most often associated with increased self-awareness.

Research limitations/implications – These preliminary findings support the idea that particular learning methods are related to specific outcomes. However, graduates often integrate information and skills from multiple methods to achieve outcomes. Future research should investigate whether the associations identified in this evaluation are present in other leadership development programs.

Originality/value – This is the first published evaluation that has attempted to link specific learning methods with outcomes for participants of a public health leadership development program.

Keywords Leadership development, Learning methods, Learning, Public health

Paper type Research paper

The findings and conclusions in this report are those of the author(s) and do not necessarily represent the views of the Centers for Disease Control and Prevention.

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Introduction

Public health leadership is of critical importance. Bioterrorism and infectious diseases such as HIV are global threats to health and security; while cancer, obesity, diabetes, preventable injuries, and racial disparities in access to care also exact high tolls both in the United States and abroad (Institute of Medicine, 2003). Public health leaders must not only lead their own organizations effectively, but communicate and collaborate successfully with other health care organizations and the myriad public, non-profit, and business organizations that strongly influence the health of the public (Institute of Medicine, 2003).

The Institute of Medicine (1988, p. 6) stated that the need to develop public health leaders is "too great to leave their emergence to chance ". In support of this statement, the US Centers for Disease Control and Prevention (CDC) has committed significant funding for national and regional public health leadership development programs since the early 1990s. Important questions remain, however, including: What do leadership development programs for public health leaders accomplish, and how do program components improve leadership?

Prominent scholars and practitioners in various sectors recommend that leadership development programs use multiple learning methods to help participants learn, such as self-assessment tools, multirater feedback, developmental assignments, action learning, classes, simulations, case discussions, and readings (Conger and Benjamin, 1999; Rothwell and Kazanas, 1999; Vicere and Fulmer, 1998). This paper focuses on how learning methods work individually and together to produce outcomes for participants in a public health leadership development program. It is part of an ongoing series of papers (Umble *et al.*, 2005b) that describe the methods and impacts of the USA-based National Public Health Leadership Institute (PHLI), a yearlong leadership development program for senior public health leaders.

Focusing on the impact of learning methods is important because while leadership development programs are widespread and increasingly being held accountable for results, only a limited number of reports thoroughly describe specific outcomes or how learning methods produce those outcomes. These limitations in the literature are pronounced for the public sector in general and public health in particular.

Background: the National Public Health Leadership Institute

Sponsored by the CDC, PHLI was instituted in 1990 and has enrolled approximately 750 participants during its 15 years of existence. From 2000 to the present, PHLI was offered through a partnership between the North Carolina Institute for Public Health, the University of North Carolina at Chapel Hill's Kenan-Flagler Business School, and the nonprofit Center for Creative Leadership. PHLI's mission is to strengthen learners' understanding and skills, with a focus on collaborative leadership, and to foster long-term collaboration and knowledge-sharing networks among the learners and other leaders (www.phli.org/). The primary target audiences for PHLI include public health directors and their deputies from state- and local-level agencies, and leaders in key federal agencies and national public health professional associations. Typically, participants have been directors or deputy directors of health for a city or populous county, directors and branch chiefs in state or city health departments, professors and other university staff who focus on public health practice improvement, senior leaders from federal agencies (e.g., CDC), and senior staff of professional associations focused

on addressing national health concerns. PHLI also enrolls one international team annually. Cohorts consist of 50-55 participants each year.

Participants may choose to enroll solo or as part of a multiorganizational team of 2-4 members, with the majority (80 percent) electing to enroll as part of a team intending to address a complex community or national problem. The program's emphasis on enrolling multiorganizational teams reflects the previously cited Institute of Medicine Reports (1988, 2003) that discussed the importance of collaborations between organizations in reaching public health goals. Teams entering PHLI remain intact, and solo participants are placed into *ad hoc* teams with other solo participants to increase networking and learning. Evaluation results comparing the team and solo learning formats are currently under review (unpublished data). An earlier version of this program, offered in California, enrolled only solo participants (Woltring *et al.*, 2003). When the program moved to North Carolina, it exclusively enrolled teams. After subsequent market research by the North Carolina staff, the program was opened to enrollment for both teams and solo participants, since some senior leaders preferred not to bring a team.

During the four cohorts upon which this evaluation is based, PHLI enrolled 210 participants in 69 teams (nine were solo or non-team participants), of whom 75 percent worked in governmental public health (9 percent federal, 34 percent state, 7 percent multicounty or district, and 25 percent county or city). The remaining 25 percent worked in universities, nonprofit organizations, other countries, health systems, and hospitals. Averaging 51 years of age, the majority managed budgets of $>$\$1 million, and approximately 20 percent were members of racial/ethnic minority groups.

PHLI consists of five phases (Figure 1) and incorporates five major learning methods that reflect contemporary practices in leadership development (Vicere and Fulmer, 1998; Conger and Benjamin, 1999; Rothwell and Kazanas, 1999; Day, 2003): a

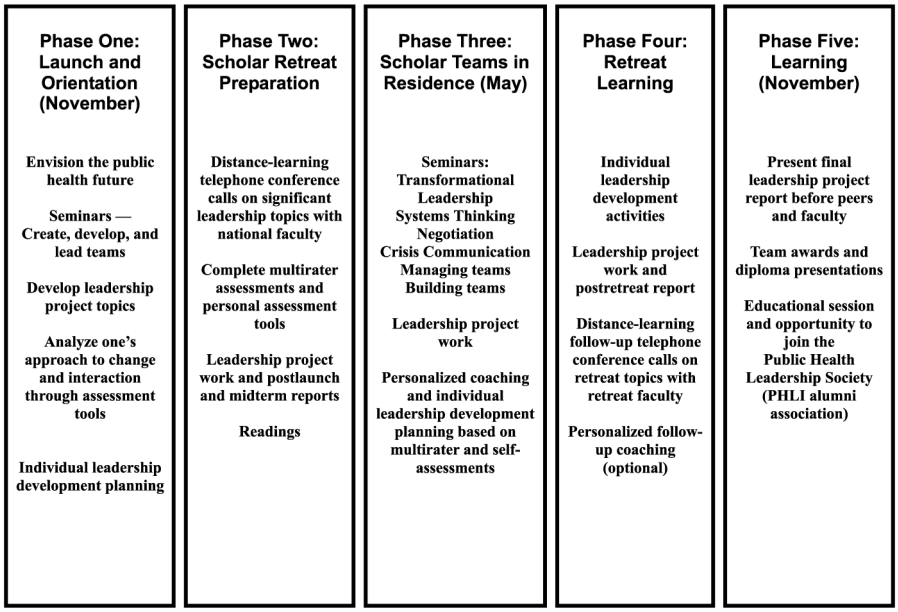

Figure 1.
National Public Health Leadership Institute program phases

major team-based action learning project undertaken in the workplace with assistance from team coaches, leadership assessment and multirater feedback with personalized coaching, skill-building seminars, readings, and distance-learning conference calls (Table I).

During Phase One, the two-day onsite launch, participants learn about leading teams, refine action learning project ideas, and analyze their approach to change and interaction through leadership style assessment tools. Phase Two, in the workplace, involves action learning project fieldwork with coaching, conference calls with topical

Learning method	Description
Learning project	An action learning project (Marquardt, 1999) that requires learners to address an important community public health problem or public health infrastructure development. Participants assess the nature of the problem, develop a problem statement, and take action to address the problem. Participants are strongly encouraged to collaborate with others. Participants can enrol and work solo or as part of a team; the majority enrol and work as a team from a city or state, or sometimes from a national professional association to address a national problem. Coaches (O'Neil, 1999) provide feedback and help participants reflect on their problem and actions through conference calls and at the onsite meetings. Participants complete two intermediate and one final written and oral report
Assessment tools and coaching	Meyers-Briggs Type Indicator (MBTI) Change Style Indicator® (Discovery Learning, Inc., Greensboro, North Carolina) 360-degree (multirater) feedback and in-depth personal coaching from Center for Creative Leadership, Greensboro, North Carolina (Chappelow, 1998) Personal development plan, which addresses each participant's strengths and areas for improvement on the basis of multirater feedback, assessments, and coaching
Skill-building seminars	Seminar topics (McDonald-Mann, 1998); have evolved annually; Years 10-13 included the following: Systems thinking Risk communication Negotiation Leadership – transformational leadership, fundamental theories Team work and team development Community development – collaboration and partnership
Textbooks and readings	Drath (2001); Heifetz and Linsky (2002); additional articles and booklets
Distance-learning: telephone conference calls	Approximately 10-14 conference calls each year address specific topics, including prereading, presentation by persons with expertise, and group discussion. Examples of topics: Positively developing the challenging employee Using the law to lead Leadership book discussions with authors (see previous Textbooks and readings) Systems thinking, negotiation, and risk communication taught by retreat faculty to go into more depth or enable follow-up discussion

Table I.
Description of Public Health Leadership Institute learning methods

leadership experts, reading current leadership books and documents, and completing individual and multirater assessments.

Phase Three, a weeklong training in residence, includes team project work plus highly interactive skill-building seminars that include simulations, films, small-group work, and discussions. Coaches trained and certified by the Center for Creative Leadership provide each participant with in-depth personalized coaching based on the multirater and leadership style assessments, and participants form a personal development plan. The retreat provides an opportunity for participants to strengthen and expand their networks across states and agencies.

During Phase Four, again in the workplace, participants continue project work with team coaching, attend conference calls led by retreat faculty extending retreat topics, and receive optional follow-on personal coaching. During Phase Five, the final one-day onsite program, participants present project results and lessons learned, and graduate from the program. Presentation of project results allows participants to demonstrate that they have integrated PHLI material into their leadership perspectives and actions. Throughout, the project has written reporting requirements, and each team has a coach who encourages reflection and provides resources. After graduation, participants are encouraged to join the alumni group, the Public Health Leadership Society, to continue networking with their cohort, to make new contacts with other PHLI graduates, and to provide leadership on a national level.

As mentioned, multiorganizational teams are encouraged to apply to PHLI, although teams entirely from professional organizations (e.g., the Council of State and Territorial Epidemiologists) also enrol in the program. The action learning project (Marquardt, 1999) provides an opportunity for participants to:

- reflect on how to define and address a difficult problem or opportunity in a team and with the involvement of other pertinent stakeholders;
- take wise and useful leadership action regarding the problem, and reflect on the effectiveness of their actions; and
- practice some of the leadership skills being discussed in the program in a team context and with coaching.

One recent team included a senior official and an epidemiologist from a major city's medical school and the public health directors from the city and a large suburban county. Their project was to design a public health institute to combine academic and practice resources to more effectively serve their city. Other recent teams have designed state or regional leadership development programs, improved access to care for Latinos in a major city, designed programs to address shortages of nurses and epidemiologists at state or national levels, and sought to improve collaboration between state and local government public health agencies, among many other goals (Umble *et al.*, 2005b).

Literature review

On the basis of experience and findings from a few published evaluations (Young and Dixon, 1996; McCauley and Hughes-James, 1994), prominent scholars recommend that leadership development programs use a combination of learning methods, such as seminars and discussions, intensive feedback and personal coaching, readings, challenging work assignments with coaching, mentoring, and action learning

assignments (Young and Dixon, 1996; McCauley and Hughes-James, 1994; Conger and Benjamin, 1999; Rothwell and Kazanas, 1999; Vicere and Fulmer, 1998). They reason that selected learning methods better accommodate certain learning styles, needs, and career stages, and that methods might differentially produce particular outcomes (knowledge, perspective, career or service aspirations, self-awareness, discrete skills, complex on-the-job skills, and stronger teams and networks). Moreover, the methods can reinforce one another during and after the program.

Table II summarizes the learning methods used and subsequent outcomes for publications describing and/or evaluating leadership development programs for public health practitioners. To identify programs, we searched under the keywords "health" and "leadership development" in PubMed, Emerald, Business Source Premier, and other business databases. Some of the programs focus on both leadership and management development. All of the programs use multiple development methods. Skill-building seminars or classes were the most commonly used learning method, with all programs (16/16) using them. Other common learning methods include interaction in teams (14/16), either through action learning projects or team development exercises, and leadership assessment tools or personal coaching, with 12/16 programs using at least one type of assessment tool or coaching method.

Almost all published reports of public health leadership development programs (Table II) are incomplete. Some emphasize results but only provide a brief description of the program, while many more present a full description of the program but only brief results. Thus, at one level, this article seeks to make a contribution by thoroughly describing both a program and its results.

At a deeper level, this article presents an opportunity to study leadership learning outcomes in relation to concepts described in the professional learning and continuing education literatures. Findings from these literatures demonstrate that simply providing "declarative knowledge"- such as knowledge that collaboration is a current leadership trend that involves five specific principles – is often useful but not sufficient for improving professional practice on the job (Cervero, 1992). Assigned readings and lectures are examples of how declarative knowledge is provided. While those can be very useful, Cervero (p. 94) posits that the development of procedural knowledge, or knowledge of *how* to do something should be the focus of continuing education programs. Procedural knowledge is dynamic – meaning that this knowledge changes in its application and meaning according to the context in which it is applied. For example, while one can learn what collaborative leadership is from a book or lecture, learning to actually practice collaborative leadership requires:

- recognizing a novel situation in which collaborative behaviors may be helpful as opposed to other behaviors that may be more routine for the professional;
- reflecting and making judgments about which particular collaborative actions make sense in the complex relational and political situation at hand;
- being able to carry out those actions with skill;
- reflecting on processes and outcomes as one engages in collaboration; and
- refining skills and learning for use in similar situations.

In time, a repertoire of complex and often tacit (or indescribable) procedural skills that might be called "collaborative-leadership-in-use" is developed, which is much more

Program	Learning methods	Outcomes
CDC Leadership and Management Institute (USA) Target audience: Leaders and managers at CDC with high potential – federal public health agency Enrolls: Teams Setliff *et al.* (2003)	1. Skill-building seminars (foundations of leadership and management, coaching and mentoring, building a learning organization, collaborative leadership, team leadership and development, strategic thinking, organizational communication, high-risk/low-trust communication, cultural diversity, work-life balance) 2. Multirater assessment and coaching 3. Action learning projects (team, class)	Unpublished reports (Setliff, 2006) 1. Individual benefits – personal self-awareness and skill development, practices, network expansion, resources and tools to draw on, increased understanding of the organization and its leadership challenges 2. Organizational benefits – projects contributed to organization's results; improved leadership bench strength; improved cross-organization collaboration perceived
Institute for Public Health and Faith Collaborations (USA) Target audience: Health and religious leaders Enrolls: Teams Kegler *et al.* (2005)	1. Skill-building seminars (nature of health disparities, relationships and community transformation, reframing skills, systems thinking, boundary leadership, creating/focusing vision) 2. Leadership style assessment (DISC profile) 3. Distance-learning (preparatory team activities, conference calls) 4. Readings 5. Action learning projects (teams)	1. Increased knowledge and skills 2. Leadership growth (changed practices) 3. Team outcomes (Institute language common in visions and team goals, strengthened/expanded teams, assessment tool development, secured new resources) 4. Strengthened collaborations/partnerships5. Program and community event implementation
Management Academy for Public Health (USA) Target audience: Midlevel and senior public health department managers; includes leadership topics Enrolls: Teams Baker *et al.* (2006); Orton *et al.* (2006); Umble *et al.* (2006); Porter *et al.* (2002)	1. Skill-building seminars (managing self, teams, hiring, supervision; managing finance, negotiation, civic entrepreneurship and strategic alliances, business planning, business writing and communication, social marketing, team building) 2. Multirater feedback and coaching 3. Distance-learning (human resources, performance management, information management and technology, communication) 4. Action learning – Business plan development project with help from business-trained coaches	1. Skill acquisition 2. Team development 3. Funding and implementation of teams' business plans for community initiatives

(*continued*)

Table II.
Learning methods and outcomes for different types of public health leadership institutes

Table II.

Program	Learning methods	Outcomes
National Public Health Leadership Institute – (USA) (California-based cohorts) Target audience: Senior-level public health officials and their direct reports, other senior leaders Enrolled: Solo participants Scutchfield *et al.* (1995); Woltring *et al.* (2003)	1. Skill-building seminars at onsite retreats (personal growth, leading organizational change, community building and collaborative leadership, leadership in training others, communications) 2. Readings 3. Personal leadership assessment 4. Telephone conferences 5. Electronic seminars 6. Peer consultation and networking 7. Applied leadership initiatives	Scutchfield *et al.* (1995) 1. Personal changes – increased knowledge, skills, confidence, and motivation to lead; helped change the way participants analyzed problems and increased their abilities to develop a vision and use networks to reach objectives 2. Reorganization of departments, improved planning, and enhanced learning cultures Woltring *et al.* (2003) 1. Skill improvements – developing coalitions and collaborations, partnering, and capacity development for community-based organizations 2. Moderate outcomes; <30 percent cited great outcomes (e.g., new coalitions or improved collaborations); 82 percent reported enhanced networks, which led to moderate or great impacts on personal growth and careers
National Public Health Leadership Institute (USA) (North Carolina-based cohorts) Target audience: Senior-level public health officials and their direct reports, other senior leaders Enrolls: Solo participants and teams Umble *et al.* (2005b)	1. Skill-building seminars at onsite retreats (negotiation, systems thinking, risk communication, transformational leadership, change management) 2. Assessment tools, multirater feedback, and in-depth personal coaching 3. Textbooks and readings 4. Distance-learning conference calls 5. Action learning project (team or solo) with coaching	Solo program (No. of cohorts 1-9) 1. Increased skills, motivation, and confidence 2. Enhanced professional networks 3. Organizational outcomes – developing coalitions and collaborations Team program (No. of cohorts 10-12) 1. Personal – understanding of shared leadership, expanded leadership roles 2. Team – increased collaboration and networking 3. Project outcomes – strengthened/created new coalitions; instituted workforce development programs; new organizational policies for collaboration developed; work/advisory group formed; needs assessment/research completed; new communication tools, new health program planned or implemented; new resources

(*continued*)

Table II.

Program	Learning methods	Outcomes
Northeast Public Health Leadership Institute (USA) Target audience: Emerging leaders from state and local public health departments and allied public and private organizations Enrolls: Solo participants Saleh *et al.* (2004)	1. Skill-building seminars (influencing others, measuring and improving public health performance, developing collaborative relationships, risk communication, cultural diversity and competence, emergency preparedness training) 2. Multirater leadership assessments 3. Team projects	1. Increases in 15 skill competency areas -ability to cope and lead changes in public health practice, use media and other forums to inform, educate, and empower people about public health problems
Pennsylvania Preparedness Leadership Institute (USA) Target audience: First-responders and public health professionals from Pennsylvania Enrolls: Teams Potter *et al.* (2005)	1. Skill-building seminars – negotiations, systems thinking, team building, problem-solving, special project planning, Model Emergency Health Powers Act/legal mandates, crisis leadership, leading and responding to change, paradigm changes, cultural competency in crises, group dynamics, social identity theory 2. Distance-learning – video conference 3. Assessment (Myers-Briggs) 4. Team Projects	1. Enhanced professional networks 2. Enhanced leadership performance during hepatitis A outbreak 3. Influenced state policymakers
Regional Institute for Health and Environmental Leadership (Colorado, USA) Target audience: Public health leadership institute directors Enrolls: Solo participants Olson (2005)	1. Skill-building seminars (collaboration, team-building, problem-solving, and interpersonal/mass communication) 2. Multirater assessment 3. Peer and faculty coaching 4. Learning projects	1. Changed leadership practices (challenge the process, inspire a shared vision, enable others to act, model the way, encourage the heart) 2. Increased collaborative practices 3. Increased reflective behaviors 4. Increased confidence
State Health Leadership Initiative (USA) Target audience: State public health officers (typically senior officials) Enrolls: Solo participants Kovner (2002)	1. Technical assistance resource book and Internet site 2. Assessments (multirater, Myers-Briggs) and feedback and personal development planning 3. Annual networking meeting for experienced and new health officers to exchange information 4. Annual week long retreat – Kennedy School (Harvard) 5. Customized training fund for targeted assistance coordinated with National Governors' Association Center for Best Practices 6. Mentoring program 7. Distance-learning (off-site program)	1. Bonding among state health officials 2. Networking, knowledge-sharing, and skill gains during and after the program

(*continued*)

Table II.

Program	Learning methods	Outcomes
Executive Leadership Development in the National Health Service – 1997-2000 (Great Britain) Target audience: Senior leaders Enrolls: Solo participants Edmonstone and Western (2002)	Program One 1. Development groups: action learning sets of seven leaders, basing their work on each participant's personal development plan 2. Personal mentoring 3. Learning network – whole group conferences and single issue workshops Program Two 1. One-day launch 2. Personal assessment and personal development planning 3. Core program of multiple 1-2-day modules 4. Optional additional modules 5. Action learning sets (groups) to facilitate individual development	1. Benefits derived from the opportunity to stop, take stock, reflect, and plan ahead
Leadership Through Effective Human Resource Management – 2001-2004 – National Health Service (Great Britain) Target audience: Senior leaders Enrolled: Solo participants Boaden (2006)	1. Onsite training sessions 2. Service improvement projects in-between onsite sessions 3. Action learning sets (i.e. groups) to discuss personal learning and service projects in-between onsite sessions	1. Evidence of leadership skill, confidence, motivational improvements, and practical skill application to the job 2. Personal and career development changes reported 3. Greater understanding of the organization and consequent improved credibility of the human resources department
National Health Service (NHS) Senior Chief Executive Programme (Great Britain) Target audience: Chief executive leaders Enrolled: Solo participants Blackler and Kennedy (2004)	1. Multirater feedback and personal consultations with program staff 2. Lecture discussions linked to consultancy-type projects, with senior NHS leaders, and about leadership theory 3. Emphasis on intensive large- and small-group consultancies on actual leadership problems in organizations, with presentations of results and learning to the organization's leaders 4. Reflections on art and literature to enhance divergent and reflective thinking	1. Opportunity to reflect highly valued 2. Opportunity to develop network, discuss problems openly with, work with, and learn from colleagues also highly valued 3. Improved determination to continue in executive leadership 4. Improved diverse areas (e.g., career reflection, decision making, and work-life balance). 5. Learned to reflect and continued doing so

(*continued*)

Program	Learning methods	Outcomes
Sustainable Management Development Program – Centers for Disease Control and Prevention (CDC) (USA) Target audience: Local program managers from developing countries, includes leadership topicsM Enrolls: Teams Setliff *et al.* (2003); Umble *et al.* (2005a)	1. Applied management project 2. Skill-building seminars (Total Quality Management [TQM], health problem analysis, force-field analysis, patient flow analysis, leadership, group and behavioral style analysis) 3. Follow-on technical assistance	1. Increased skills 2. Team development 3. Improved program indicators
Open Society Institute, CDC, and Stampar School of Public Health Capacity Development Initiatives (Croatia, Macedonia) Target audience: Academic and practice leaders, local leaders, and community partners Enrolls: Teams Simmons *et al.* (2005)	1. Train-the-trainer sessions in USA in TQM, community health planning, policy development, workforce development 2. Consultation with country teams 3. In-country training programs developed and funded in similar topics	1. Development of in-country workforce development programs to enable local assessment and policy development 2. In-country teams produced county-level health plans, action steps, finances
District Health Leadership Development Course (Republic of South Africa) Target audience: District-level health leaders and managers Enrolls: Teams Dovey (2002)	1. Teaching module on principles of transformative leadership at onsite program (1 week) 2. Action learning project work (transforming relationships and building social capital) 3. Expert coaching for teams	1. Improved social capital (trust, relationships, cooperation) between organizational members and between organizations 2. Improved efficacy in problem-solving, planning, and strategic action 3. Greater grasp of the importance of trusting, reciprocal, cooperative relationships in solving problems 4. Improved public health conditions on-the-ground (e.g., improved sanitation practices)
Distance-Learning MPH in Public Health Leadership (North Carolina, USA) Target audience: Leaders and managers in public health agencies and other settings Enrolls: Solo participants Cannon *et al.* (2001); Umble *et al.*(2003); Davis *et al.* (2004)	1. 39-hour graduate Internet curriculum (plus videoconference in first cohort) 2. Onsite meetings for coursework and network building 3. Applied personal assessment and action-planning workshop 4. Final applied learning project	1. Improved skills and confidence in skills, changed perspectives 2. Changed practices on the job for selected skills during and after the program 3. Changed approaches to problem solving (analytical skill, team approach, and confidence) 4. Increased professional affiliations and service commitments 5. Job changes, including promotions

Table II.

complex than simply defining the term "collaboration" (Schon, 1987). Action learning is focused on developing such procedural knowledge through asking participants to face a complex situation, apply new leadership perspectives and actions to address it, and reflect on how it went and what they will do in the future to achieve greater success.

This article describes PHLI and its six-month follow-up results and provides a greater explanation of how the program's learning methods produce results by addressing the following evaluation questions:

- How do participants rate the relative contribution of each learning method to their own learning and development?
- How did the PHLI learning methods contribute individually and in combination to participant-reported leadership practice changes and outcomes?
- What leadership practice changes and other outcomes did participants report in the six-month post-program follow-up survey?

Methods

Six-month follow-up survey

A retrospective pretest design (Howard, 1980; Lam and Bengol, 2003) was used for this study. Six months after graduation from PHLI, four recent cohorts ($n = 210$), of participants were invited to complete an online survey. The survey asked graduates to rate the extent to which they had practiced 13 key leadership behaviors taught during the program before the program started, and the extent to which they were practicing them 6 months after the program, on a scale of 1-7 (1 = not at all, and 7 = to a great extent). The 13 leadership behaviors were based on the program's objectives, which in turn, were derived from national documents about training gaps for public health leaders in the United States (Institute of Medicine, 1988, 2003). Graduates also were asked to rate the degree to which the five major PHLI learning methods led to improvements in their leadership ability, whether "no", "only a little", "some", or "substantial" improvements. Last, the survey contained three open-ended questions that asked participants to report changes in understanding, skill, practices, and outcomes that they attributed to their participation in PHLI. The survey did not include demographic questions.

Data analysis

Quantitative data from the leadership practice and learning method questions were analyzed by using SPSS® (SPSS, Inc., Chicago, Illinois). For the retrospective pretest questions, differences in means were analyzed by using paired samples t-tests. Qualitative data from the three open-ended questions were analyzed by using a codebook containing 17 categories. These 17 categories have evolved during five years of PHLI evaluation work and were initially based on key evaluation outcomes delineated in studies from the Center for Creative Leadership (McCauley and Hughes-James, 1994; Young and Dixon, 1996) and PHLI's logic model. Five categories represented non-behavioral changes at the individual level, including changed leadership perspective and increased confidence while four outcome categories captured changed leadership practices, or individual behavior changes, including collaborating and communicating more effectively. Three other categories captured organizational outcomes that participants related to participation in PHLI (e.g. creation of a new program). The other five categories consisted of PHLI's five learning methods.

Two independent coders read participants' responses to open-ended questions and separately coded them into the 17 categories. To increase interrater reliability, each codebook category possessed a definition. After coding a subset of participant responses, the two coders met and discussed discrepancies in coding. During these meetings, three new themes (Patton, 1990) emerged and were added to the codebook. The two coders reached 100 percent consensus on the categories present in participants' responses.

Results

The overall response rate for the six month follow-up survey was 66 percent (59 percent for Year 10 [$n = 32$], 59 percent for Year 11 [$n = 27$], 83 percent for Year 12 [$n = 44$], and 61 percent for Year 13 [$n = 30$]). Year 10 refers to the tenth year of PHLI operation, Year 11 refers to the eleventh year of operation, and so on.

Limitations

At least four limitations to this study are worth noting. First, all data are self-reported and therefore subject to recall bias. Additionally, the 61-69-percent response rates for Years 10, 11, and 13 might result in response bias; perhaps only the most motivated and highly achieving participants answered questions. Also, information about learning methods was gleaned from participants' responses about program effects. If we had specifically asked participants to relate personal and project outcomes to individual learning methods, the results might have been different, with more or fewer outcomes being attributed to particular methods. Thus, these evaluation results should be viewed as tentative. Future evaluation instruments should ask participants to directly link specific outcomes to specific learning methods or combinations of methods. Last, the results from this evaluation might not generalize to other leadership development programs because PHLI enrols primarily senior public health leaders.

Contribution of learning methods

Table III presents data from the five quantitative questions that asked how each learning method improved participants' leadership ability. The category of assessment tools and coaching was consistently ranked highest and also had the highest overall mean (3.63). This was followed by skill-building seminars (mean: 3.53), the leadership project (mean: 3.29), textbooks and readings (mean: 3.14), and distance-learning conference calls (mean: 2.86). Ratings of learning method contribution changed over time. For example, the team leadership project and skill-building seminars received higher ratings with each passing year. Additionally, during Years 12 and 13, the team leadership project, the 360-degree feedback and personalized coaching, and the skill development seminars were ranked approximately equal in contribution to leadership ability, compared with Years 10 and 11.

Results from qualitative data

Not every participant who completed the six-month follow-up survey provided qualitative responses, and of those that did provide qualitative responses, only some provided qualitative data that directly linked learning methods to outcomes. To be specific, in Year 10, 24 participants provided 76 qualitative responses. Of these 76 qualitative responses, 27 directly linked learning methods to outcomes. In Year 11, 24

Table III.
Ratings of Public Health Leadership Institute's learning methodology contributions to improvements in leadership ability (for first four years the program was housed in North Carolina)

Learning method	Year 1 Mean[a]	Year 1 SD	Year 2 Mean[a]	Year 2 SD	Year 3 Mean[a]	Year 3 SD	Year 4 Mean[a]	Year 4 SD	Years 1-4 combined Mean[a]	Years 1-4 combined SD
360-degree feedback and personalized coaching	3.81	0.54	3.52	0.58	3.47	0.80	3.77	0.50	3.63	0.65
Skill-building seminars	3.41	0.66	3.48	0.70	3.60	0.54	3.63	0.62	3.53	0.62
Leadership action learning project	3.00	0.98	3.04	0.81	3.43	0.62	3.60	0.50	3.29	0.77
Textbooks and readings	3.13	0.66	3.00	0.94	3.11	0.65	3.33	0.66	3.14	0.72
Distance-learning telephone conference calls	2.91	0.96	2.67	1.18	2.93	0.73	2.90	0.71	2.86	0.89

Notes: [a] Participants' responses included 1 = no improvement; 2 = only a little improvement; 3 = some improvement; or 4 = substantial improvement; $n = 133$

participants provided 56 qualitative responses on the six-month follow-up survey. Of those 56 qualitative responses, 18 directly linked learning methods with outcomes. In Year 12, 35 participants provided a total of 96 qualitative responses. Of these 96 qualitative responses, 45 directly linked learning methods to outcomes. For Year 13, 25 participants provided a total of 71 qualitative responses. Of these 71 qualitative responses, 20 directly linked learning methods to outcomes. Thus, 108 participants directly mentioned learning methods and outcomes 110 times. However, in 72 of these cases, participants linked multiple methods to a single outcome. Overall, learning methods and outcomes were related to each other 182 times in the six-month follow-up data.

Table IV presents the six major categories of self-reported outcomes from the six-month follow-up survey, by learning method, for Year 10-13 participants. The table presents the number of times each learning method was mentioned in relation to a specific outcome. Self-reported outcome categories included changed leadership understanding, knowledge and skill development, increased confidence, increased self-awareness, leadership practice changes, and results at the organizational level.

Changed general leadership understanding

General leadership understanding was discussed 42 times on the 6-month follow-up survey. Leadership understanding refers to participants' discussion of broad, overarching leadership concepts and perspectives (e.g., what leadership is, how leadership self-development and collaboration are related to better leadership, and how to lead in one's organizational context). Participants most often referenced the learning project ($n = 16$), assessment tools and coaching ($n = 15$), and skill-building seminars ($n = 9$) when discussing the aspects of PHLI that helped them change their leadership understanding. The following quotations link changed leadership understanding with the learning project and skill-building seminars, respectively:

> Working together in a team environment across political jurisdictions helped us see the bigger picture in terms of unique differences and perspectives of our communities.... PHLI helped me maintain the broad vision of community health and how public health fits into it.

> One of the most memorable was the "Water of Ayole" videotape, [shown] during our systems [thinking classroom seminar] discussions. Very moving; brings home in a way discussion can't that leadership isn't dropping a "program" on anyone, nor is assuming "they don't know what's best for them". The video drove home in a "gut" way that leading isn't telling – it is listening, observing, and connecting with others, and if they wish to progress along with you, then success is likely – and it is then OUR success and THEIR success, not "mine".

Increased self-awareness

Participants overwhelmingly discussed increased leadership style self-awareness in relation to assessment tools and personal coaching. In fact, only 2/28 comments regarding increased self-awareness were related to a learning method other than the assessment tools and coaching. Fourteen comments referred to more awareness of one's personal leadership style and that of others. For example:

> Both assessments (MBTI [Meyers-Briggs Type Indicator] and 360[-degree]) are helping me to better understand myself and how people perceive me. They have helped me to identify my strengths and opportunities for improvement.

Table IV.
Categories of Years 10-13 Public Health Leadership Institute graduates' self-reported changes and outcomes

Response category	Number of mentions: Assessment tools and coaching	Learning project	Skill-building seminars	Textbooks and readings	Distance-learning conference calls	Total
Changed leadership understanding	15	16	9	2	0	42
Self-awareness about leadership in practice						
Setting goals and gaining strategies for improved leadership work	14	0	0	0	0	14
Personal leadership styles and those of others	12	1	1	0	0	14
Knowledge and skill development	4	7	9	1	0	21
Increased confidence in leadership skills	12	1	7	0	0	20
Changed leadership practices						
Communicate more effectively within and outside their organization	5	3	6	1	0	15
General leadership and taking on new leadership roles	1	5	2	0	1	9
Collaborate, partner, and network more effectively with other agencies	1	4	3	0	0	8
Coaching and teaching others about leadership and their work	1	4	3	0	0	8
Organizational outcomes						
General organizational benefit	2	6	3	1	0	12
Organizations are collaborating, partnering, and communicating more effectively	0	10	1	0	0	11
New service or project implemented	0	8	0	0	0	8
Total		65	44	5	1	182

Another 14 comments discussed how new strategies were acquired to address weaknesses as a result of how PHLI combined the assessment tools with the personalized coaching. For example:

> I was able to achieve a breakthrough with an individual on my management team with whom I was experiencing a lot of conflict. Our relationship has been significantly improved as a result of the 360 feedback I received and the one-on-one consultation I [received] regarding the feedback.

> One area that I found I could make improvements in is conflict management. This became apparent to me after meeting with my personal coach. My coach really helped bring this to my attention and helped me understand how to make improvements in this area. In my supervisory role, this is extremely important to me.

Knowledge and skill development

Knowledge and skill development was discussed 21 times, including enhanced skills in teamwork ($n = 7$) and communication ($n = 4$). Skill increases were related most often to skill-building seminars ($n = 9$). The learning project was also related to increased knowledge and skills ($n = 7$), particularly improved teamwork skills ($n = 4$). For example:

> The teaching and exercises in public communication/negotiation skills were perhaps the most valuable for me. I understood more clearly that communication in this arena should be brief and to the point with clear, simple messages to be effective. My previous tendency was to be more academic, providing lots of background detail and examples. This could often lose a typical audience. I have to work on my newfound communication skills.

> Because the arena I work in is so political, the negotiation skills I learned [in a skill-building seminar/simulation] have been invaluable. I am in a role where I must communicate with policymakers on a regular basis; knowing the type of information to give them and how much information to give them is a critical skill.

Increased confidence

Participants also discussed having increased confidence after the program ($n = 20$), particularly in their personal leadership style ($n = 7$), personal leadership skills ($n = 6$), and in speaking out about how leadership challenges should be handled ($n = 3$). Increased confidence in these areas was most often related to assessment tools and coaching ($n = 12$). Additionally, participants linked increased confidence ($n = 7$) to the skill-building seminars. As one explained:

> The 360-degree feedback and the personal coaching provided the most significant impact on my confidence in leadership. It was very helpful in validating that I was a leader and confirmed that I was on the right track and needed to continue to develop my leadership skills.

Another said:

> Through the exercises, the 360 in particular and the group exercise[s] onsite in Chapel Hill, I attained a higher degree of self-confidence in my ability to observe, understand, and lead complex decision-making processes and developing [sic] the best solution. As a result, I am more confident in speaking out and voicing concerns when I see any important decisions heading the wrong way. I think that has greatly assisted me as I have taken on additional duties and increased scope of authority.

Changed leadership practices

Qualitatively, at the 6-month follow-up, participants reported changed leadership practices. Improving communication within and outside their organizations ($n = 15$), taking on new leadership roles and leading more effectively ($n = 9$), coaching and teaching others ($n = 8$), and collaborating or partnering with other agencies more often ($n = 8$) were the most commonly reported practice changes.

Improved communication within and outside their organizations was discussed most often within the context of the skill-building seminars ($n = 6$) and assessment tools and coaching ($n = 5$). Additionally, this practice change as part of their learning project experience was discussed three times. An example of improved communication in relation to a skill-building seminar is provided by the following quotation:

> I was better able to communicate via TV and radio (1) using the 3-point method [taught in the media communication seminar], (2) relaying unfavorable news, and (3) using some of the techniques discussed to answer journalists' questions.

The rest of the reported practice changes were most often mentioned in relation to the learning project. For example, taking on new or expanded leadership roles in organizations (e.g., leading a new organizational taskforce or serving on a committee dealing with a public health concern) was mentioned most often in conjunction with the learning project ($n = 5$). For example:

> Our work developing [a regional] Leadership Institute has been invaluable both in getting to know other state leaders and in learning about leadership. I am a member of the advisory Committee for the [regional institute] and am taking part as a coach and mentor for our first class of scholars. Within my organization, I am assisting our [next] internal [Public Health Leadership] Institute team [to] implement a successful project. Outside of my organization, I am leading our state's Society for Public Health Education as president this year. I am more effective in both of these roles because of PHLI.

Coaching and teaching others in their organizations was related to the learning project ($n = 4$) and skill-building seminars ($n = 3$). As one put it:

> Our PHLI team project focused on enhancing leadership opportunities for others here in the agency. I've worked as part of my office team in coordinating a leadership forum, which focused on the role of leaders in developing staff.

Likewise, as predicted by Raelin (2006) who posits that action learning can produce collaborative leadership, forming new collaborations and partnerships with others was closely related to having undertaken collaborative project work ($n = 4$) within PHLI:

> I have used the skills of collaboration to build a network around dealing with high infant mortality rates in one region of the county with local healthcare providers, community advocates, faith community, etc., and together we have accessed new funds to address the problem.

> While working on our project (providing leadership to our injury prevention development), we created an external work group to advise the Department on important injury issues. Included in that work group were members of many of the Native American tribes. As a result of this dialogue, we now are working closer with the tribes on several public health issues, and have conducted two specific conferences just for Tribal Health leaders to discuss collaboration.

Quantitative self-reported practice changes

Statistically significant t-tests from the retrospective pretest/posttest questions support the idea that PHLI increases how often participants engage in key leadership practices. Participants ($n = 133$) reported significant ($P < 0.001$) increases in all 13 leadership practices (Table V). Communicating more effectively with the public and policymakers, negotiating, building and working in teams, building relationships with community partners, and taking on formal and informal leadership roles were all areas of reported increases that matched well with the qualitative findings discussed previously.

Organizational outcomes

In addition to changed leadership understanding, skills, and practices, participants also reported outcomes at the organizational level. Specifically, participants reported general organizational benefits ($n = 12$), developing and strengthening their organizations' collaborative relationships ($n = 11$), and developing or implementing a new program ($n = 8$). General organizational benefits were discussed in conjunction with multiple learning methods, including the learning project ($n = 6$), assessment tools and coaching ($n = 2$), and skill-building seminars ($n = 3$). General organizational benefits included positive outcomes, including development of position descriptions, better coordination among departments, and improved employee relationships. For example:

> During the 2004-05 influenza season, collaboration with community partners was essential to address the vaccine shortage. The collaboration and negotiation skills that I received at PHLI were extremely beneficial in helping our local health department take the lead in pulling the community together and navigating through some very difficult decisions regarding vaccine distribution. The outcome was community consensus (public and private healthcare) on how to distribute the very limited supply of vaccine that we had.

The category of collaborating and partnering more effectively ($n = 11$) was strongly and directly linked to the action learning project. Often, participants' learning projects involved developing a new partnership or strengthening an existing one. Common associations mentioned were between local organizations, both public and private, between levels of government (frequently state and local), or between health departments in neighboring states. The associations that participants developed varied with the magnitude of the problem the participants were trying to address, with problems of a more substantial scope often resulting in more substantial collaborations. One example follows:

> Our team project lead to increased collaboration across internal and external partners. We obtained funding from state organizations and commitment for in-kind contributions and had recognition at the state management level for our project. Collaboration across the public health nursing program with the Children's Medical Services program was enhanced. Being a PHLI project seemed to give permission and endorsement to try something new and be an example for leadership.

Participants also described new initiatives and programs ($n = 8$), and all eight of these new programs were mentioned in relation to the learning project. As an example, certain interagency team projects involved developing leadership institutes in Puerto Rico, Ireland, Wisconsin, and in the Great Basin region of the United States. These

Table V.
Leadership behaviors practiced before and after the Public Health Leadership Institute by Years 10-13 participants

Leadership behaviors	Extent practiced before PHLI[a] Mean	SD	Extent practiced after PHLI[a] Mean	SD	T statistic for paired samples t-test	P value
I effectively negotiate with other leaders to achieve win-win outcomes	4.50	1.28	5.84	1.04	14.20	$P < 0.001$
I form teams of leaders to address health challenges, rather than trying to address the challenges on my own	4.71	1.40	6.02	.93	13.90	$P < 0.001$
I ask for feedback from others (e.g., boss, peers, subordinates) about my leadership strategies	3.79	1.48	5.25	1.37	12.76	$P < 0.001$
I discuss my leadership challenges with other persons to gain their ideas	4.12	1.40	5.61	1.24	12.63	$P < 0.001$
I spend time using books, tapes, or other resources to strengthen my leadership skills	3.55	1.39	4.86	1.36	12.17	$P < 0.001$
I effectively lead teams of staff to achieve goals	4.75	1.25	5.84	1.05	11.85	$P < 0.001$
I effectively foster organizational changes to achieve goals	4.27	1.29	5.51	1.15	11.76	$P < 0.001$
I effectively communicate with the public about health issues	4.41	1.57	5.37	1.42	9.56	$P < 0.001$
I effectively communicate with policymakers, legislators, or local politicians to achieve goals	4.15	1.43	5.14	1.36	9.53	$P < 0.001$
I effectively build relationships with community partners to achieve common goals	4.73	1.36	5.75	1.26	9.37	$P < 0.001$
I effectively contribute on teams of leaders working for improvements	5.09	1.12	6.09	0.95	8.86	$P < 0.001$
I take on formal or informal leadership roles when needed in my work	5.34	1.25	6.21	0.98	8.37	$P < 0.001$
I maintain a work-home balance that is satisfactory to me	4.02	1.54	5.00	1.40	7.79	$P < 0.001$

Notes: [a] Participants' responses included 1 = not at all; 3 = to a small extent; 5 = to a moderate extent; or 7 = to a great extent; $n = 133$

programs now provide leadership development opportunities to public health leaders in these large areas. For example:

> Our project, developing a regional leadership institute, expanded this cohort of leaders even more. PHLI and the resulting Leadership Institute have provided either directly or indirectly, a statewide and organizational leadership network that has made it easier to advocate and more likely to effect real change.

> The initial project proposal for a public health institute in [our metropolitan area involving the city and county health departments and the medical school] has evolved into an institute for population and patient health at [the medical school]. Not exactly what we originally envisioned, but nonetheless, a quintessential "win-win" for the community. Probably our most sustaining accomplishment.

Learning methods were helpful in combination with one another

In certain instances (e.g., the examples presented previously), participants discussed how individual learning methods benefited them in their work life. However, participants often cited learning methods in conjunction with one another ($n = 72$). That is, participants often referenced more than one learning method in relation to a particular outcome. For example, participants frequently explained how the action learning project helped them to understand and apply insights from a particular seminar or leadership style assessment. For example:

> I had the opportunity to confront one (or more) of my more challenging leadership behaviors during our team project. Because the experiences came up during the training event, I was able to receive immediate feedback and coaching. These were lessons that I'll never forget, and I reflect back on those experiences whenever my behaviors need to be checked.

> As part of our team project, we had the opportunity to understand in reality why we were not effective as a team. It took lots of reflection and critical thinking to move us to new levels of productivity and satisfaction. We started changing our communication strategies, but what most helped us, was practicing with the tools and the instruments we were learning through NPHLI. The readings on leadership from Heifetz and Linsky, Drath, Rowitz, and Senge, among others, provided a framework to restructure our work and overcome the principal obstacles we were facing.

Figure 2 is a representation of the interrelatedness of PHLI's learning methods. Overall, in addition to teaching strong lessons of its own about the benefits and skills needed for teamwork and collaboration in public health leadership, the action learning project provides concrete opportunities within which to understand and test the insights provided by the seminar, assessment tools, and personalized coaching.

Another important finding of this evaluation was that textbooks and readings and distance-learning teleconference calls were only mentioned in conjunction with outcomes six times (five for textbooks and readings and one for distance learning). Thus, the majority of reported outcomes appear to be linked with only three of PHLI's five learning methods: the learning project, assessment tools and coaching, and skill-building seminars.

Discussion

Participants reported learning outcomes, confidence gains, practice changes, and organizational outcomes. Learning outcomes included changed leadership

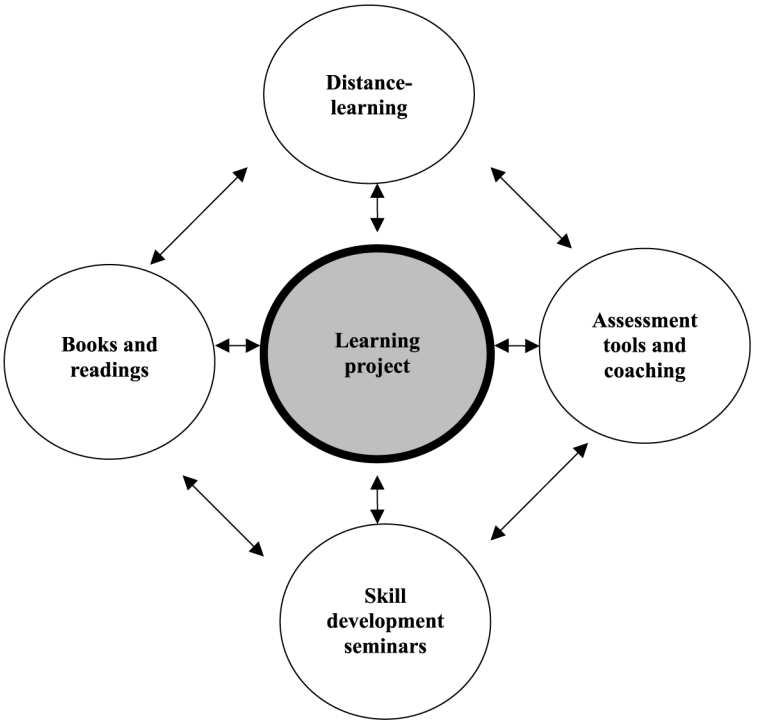

Figure 2.
Learning methods complemented one another in contributing to overall National Public Health Leadership Institute learning outcomes

understanding, increased skills and confidence, and taking on new leadership roles. Results from both the qualitative and quantitative data reveal that one of the most consistently reported practice changes was improved or enhanced communication and collaboration within and across public health agencies. This communication and collaboration has in turn improved interorganizational relationships and, in certain cases, led to new or expanded public health programs.

These preliminary findings suggest that certain methods have stronger effects on particular learning outcomes than others. For example, the experiential nature of the action learning project promotes skills for developing collaborations and offers opportunities to apply skills learned in class. On the basis of quantitative ratings, the impact of the action learning project on participant's leadership development has increased over the years. This is probably the result of adjustments to the project to make expectations and reporting clearer and consistent with action learning theory. Other learning methods (e.g., skill development seminars) are important for developing conceptual understanding, strategies, and techniques, whereas assessment tools and personalized coaching develop leadership style self-awareness and specific strategies to counteract weaknesses or use strengths.

Framing these results in an adult learning context, it appears that didactic activities such as the skill-building seminars provide declarative as well as procedural knowledge for improving leadership (Raelin and Coghlan, 2006), probably aided by the fact that the seminars usually involved simulations requiring practice of the skills being taught. Participants also reported increases in confidence (Applebaum and Hare,

1996) and in self-knowledge (Sosik *et al.*, 2002), most often resulting from exposure to the assessment tools and personal coaching sessions. Participants then put these new forms of knowledge into practice using the action learning project. By putting knowledge into practice in their organizational contexts, participants gained additional procedural knowledge (Cervero, 1992, Raelin and Coghlan, 2006).

In addition, the action learning project was strongly linked with increased collaboration, a link posited by Raelin (2006). In part, this is because PHLI strongly encourages participants to develop collaborative relationships as part of their action learning projects. However, Raelin (2006) also notes that action learning increases understanding of group dynamics and promotes the development of interpersonal skills, which could also contribute to the development of partnerships.

This evaluation also found that integrating learning methods is key to participant learning. Most participants cited multiple methods when discussing outcomes. Thus, we believe that sequencing of learning methods is a critical factor to take into consideration when creating a leadership development program. Methods that increase basic declarative knowledge (such as readings and seminars) are probably most effective when offered before or during the action learning project. In addition, methods that increase self-knowledge (assessment tools and coaching) may provide the most impact when offered before or in concert with an action learning project so participants can address weaknesses during interactions with other learning project team members.

PHLI participants used the learning project as a problem within which to understand and practice new skills and to gain greater insight into how they can most effectively exercise leadership in varied situations. This finding indicates that using multiple methods increases learning for individual participants and, ultimately, outcomes for organizations.

The action learning project is a very important part of the PHLI program since it encourages participants to "learn by doing" and build practical and procedural knowledge in their organizational context (Raelin and Coughlan, 2006, Peters and Smith, 1998). As Raelin and Coughlan (2006, p. 673) note, "there is no substitute for engagement in the workplace, where learners find they have to take real positions, make moral judgments, and defend these positions and decisions under pressure". Although declarative knowledge is helpful in getting started, continuing education should focus on developing an expanded capacity or repertoire of procedural knowledge that enables one to take "wise" actions within ambiguous circumstances (rather than "correct" actions as if there were one right answer in most leadership situations). Such rich knowledge and skill can only be developed through action and reflection (Cervero, 1992).

Although participants' statements did not strongly link textbooks/readings and teleconference calls to outcomes, this does not mean that they should be excluded. In fact, three reasons justify PHLI's having retained these two learning methods over the years, including:

- high rates of participant participation on conference calls;
- efficiency and cost-effectiveness; and
- high ratings on process evaluation reports for participant satisfaction for both methods.

Other interactions with participants lead us to understand that readings and conference calls are important learning methods for some participants, because the action learning project is providing a real-time and highly visible "need" to increase understanding of leadership, and because the selected books and conference calls discuss leadership from an applied and case-based perspective. Although these two learning methods are not major outcome determinants for participants, these benefits for some participants warrant their inclusion in leadership development programs.

As leadership development programs evolve, consideration should be given to how program components lead to desired outcomes. For example, data from this evaluation support the idea that including an action learning project leads to enhanced collaborative relationships and outcomes at the organizational level (e.g., as new programs). If the program seeks to increase participants' self-awareness, then assessment tools – including multirater feedback – and personalized coaching should be included.

Our evaluation indicates that participant and organizational benefits are derived from including multiple learning methods in a leadership development program. We would argue against using single learning methods, like skill-development seminars and learning projects, in isolation. Rather, programs should include multiple methods and integrate them to provide maximum benefits for the learners. More evaluations of learning method effects are warranted to better elucidate how leadership development programs create change at the participant, team, and organizational levels. Particular attention should be paid to method sequencing to determine whether such learning methods as assessment tools and coaching have a greater impact if received before, during, or after other methods (e.g., skill-building seminars or action learning projects).

A final implication of this study is that, for each leader, developing an effective repertoire of leadership skills takes time, practice, feedback, good ideas from other sources, and continuous reflection. Since learning through taking action, feedback, and reflecting on action was important in participant's statements of how they learned in this program, organizations and leadership development programs would do well to supplement short-term "programs" like the one described here with sustained opportunities for professional development within an action context.

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