Commonwealth Research Consulting, Inc.
Bulletin

National Institute of Corrections Training Evaluation Project

Training, Leadership, and Organizational Change: Focus on CLD and MDF

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This is the sixth in a series of research bulletins on NIC's Training Evaluation Project. The project is being conducted by a team of researchers from Commonwealth Research Consulting, Inc. (CwRC), in collaboration with NIC's Division of Research and Evaluation. The purpose of the

project, and the bulletin series, is to enhance understanding of training programs, and when appropriate, facilitate program improvements to better serve the field.

Previous bulletins in the series include:

1. *Participant Demographics, Overall Evaluation of Training, and Applicability Ratings* (February 2007) provides a demographic sketch of 458 training participants, a discussion of early results from the

Highlights

- **Data:** Over 3,000 surveys completed by 151 training participants and their subordinates, superiors, laterals, and others were analyzed for the bulletin (Table 1).

- **Instruments:** The Leadership Practices Inventory (LPI) and the Multifactor Leadership Questionnaire (MLQ) were the primary instruments of data collection.

- **Background:** Participant demographic profiles and training evaluation results were reviewed to facilitate exploration of relationships between participants, training, leadership, and organizational change.

- **Multiple Regression Modeling** revealed that participants' evaluation of training was predictive of leadership ratings they would receive from direct reports six months after training (page 9).

- **Leadership after CLD:** A variety of results suggest that CLD effectively increased transformational leadership practices and decreased passive-avoidant behaviors. Further, results suggest that subordinates were more keenly aware of changes in leadership practices than others in the organizational hierarchy.

- **Leadership after MDF:** Results indicate that MDF had little impact on leadership, as measured by the MLQ5X. Only one of the nine leadership practices showed a significant change. Active management by exception declined slightly; a favorable finding.

- **Organizational involvement** in key training-related activities increased significantly after all five CLD trainings. There are numerous significant positive correlations between organizational involvement and transformational leadership as measured by both the TMLQ and the LPI (page 13).

- **Key Performance Indicators (KPI):** On the six month follow-up, CLD participants on average reported slight progress improving their selected organization-wide KPIs. Of some concern is a significant inverse correlation between transformational leadership and progress on KPIs. MDF participants reported moderate progress after phase one, substantial progress after phase two, and exceptional progress after phase three.

- **Leadership as Organizational Context:** Leadership lies at the nexus of the individual and the organization. As such, leadership is both the individual expression of leadership behaviors, and the collective perception of leadership as a broader condition of the organization. Thus, not only can leadership **cause** organizational change, to the extent that transformational leadership transforms, it **is** organizational change. In this light, the broadly favorable leadership changes reflected in the TMLQ and LPI follow-up data after CLD, also constitute favorable organizational changes (page 14).

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evaluation project, and a preliminary profile of organizational resources and barriers to the implementation of training objectives in the workplace.

2. *Participant Evaluation of Trainers* (July 2007) focuses on 34 trainers involved in 20 Academy Division trainings offered during the pilot phase of the project (2005-2006), and provides a discussion of both quantitative and qualitative findings.

3. *Training Results, Activity Level Changes, and Implementation Results* (February 2008) discusses findings from a series of multivariate analyses of the relationships between demographic characteristics, training quality, post-training environments, and the successful implementation of training objectives in the organization.

4. *2008 Evaluation Results: Satisfaction, Learning, and Action Plan Progress* (November 2008) provides preliminary evaluation results from four FY08 Jails Division and Prison Division trainings.

5. *2008 Evaluation Supplement: Learning, Application, and Action Plan Progress* (March 2009) updated and expanded the evaluation described in Bulletin 4 to include recently collected follow-up data, and findings from a series of multivariate analyses.

These bulletins are available at: www.nicic.org/research.[1]

The current bulletin provides additional findings from the analysis of evaluation data collected on eight Correctional Leadership Development (CLD) and Management Development for the Future (MDF) trainings conducted in 2005 and 2006:

- Juvenile CLD trainings 05-D101 and 06-D101
- Adult CLD trainings 05-M101, 05-M102, and 05-M103
- MDF trainings 05-R039, 06-R012, and 06-R019

MDF is a three phase training, 36 hours per phase, that was conducted over 18 months with 34 members of a single state department of corrections. The target audience was mid-level managers, e.g., captains and lieutenants interested in becoming senior-level leaders in their agency.

CLD is a 70 hour training, conducted in a single phase over nine and a half days. It is based on the Leadership Challenge Model developed by James Kouzes and Barry Posner. The target audience was senior-level leaders, such as prison wardens and superintendents, jail administrators, and senior probation and parole supervisors. CLD addressed five leadership practices:

1. Challenging the process
2. Inspiring a shared vision
3. Enabling others to act
4. Modeling the way
5. Encouraging the heart

The Leadership Practices Inventory (LPI) is a 360 degree feedback instrument developed by Kouzes and Posner to assess behavior relative to these five leadership practices.

The LPI is a "360 degree" instrument in that it is typically administered not only to leadership training participants, but also to their superiors, subordinates, laterals, and persons outside their chain of command. 360 data can provide the basis for a more complete, objective, and informative evaluation than is possible when relying solely on self-reported data provided by training participants.

The remaining 360 data were collected via another well-established instrument, the Multifactor Leadership Questionnaire developed by Bass and Avolio. Version 5X (MLQ5X) was used to assess individual leadership as MDF participants progressed through the three phases of training. The team MLQ (TMLQ) was used to assess collective leadership before and after CLD training. Data sources for the bulletin are summarized in Table 1.

Follow-up evaluation data were collected from training participants beginning six months after conclusion of the training. Paper surveys were administered via US Mail. The follow-up data collection procedure is based on Dillman's Total Design Method (2000).[2] Although this multi-stage protocol requires several months to execute, it is a well established method of maximizing survey response rates.

Findings from a series of univariate, bivariate, and multivariate analyses of these data are provided next. Although extensive evaluation results for these trainings

were presented earlier in Bulletins 1-3, and in a series of brief reports to NIC, additional findings presented in the current bulletin stem primarily from analyses of 360 data.

The primary purpose of the bulletin is to
examine leadership from a 360 degree perspective,
and to
assess relationships between
training, leadership, and organizational change.

The bulletin concludes with a summary and recommendations, followed by a discussion of the future directions of the evaluation project and the bulletin series.

TABLE 1: CLD and MDF Data Sources, 2005-2007

Completed Evaluation Forms   (N=3,046)

Training	Juvenile CLD		Adult CLD			MDF			Totals
	05-D101	06-D101	05-M101	05-M102	05-M103	05-R039	06-R012	06-R019	
	5/17 - 5/27/05	5/16 - 5/26/06	4/5 - 4/15/05	7/12 - 7/22/05	9/13 - 9/23/05	5/15 - 5/19/05	1/24 - 1/26/06	9/6 - 9/8/06	
Number of Participants	27	21	22	25	22	34	30	26	207
Number of Trainers	9	8	5	6	9	4	3	3	47
Participant Demographics	27	21	22	25	22	34	a	a	151
Trainer Evaluations	242	164	110	150	191	136	78	68	1139
Training Evaluations	27	21	22	25	20	34	26	23	198
Key Performance Indicators	0	0	0	23	0	4	5	2	34
LPI pretest (Direct Reports)	0	0	96	104	0	0	0	0	200
LPI pretest (All Others) [b]	0	0	68	75	0	0	0	0	143
LPI post-test (Direct Reports)	0	0	28	49	0	0	0	0	77
LPI post-test (All Others) [b]	0	0	21	49	0	0	0	0	70
MLQ-T pretest [c]	0	0	85	96	0	0	0	0	181
MLQ-T post-test [c]	0	0	48	75	0	0	0	0	123
MLQ5X (Subordinates)	0	0	0	0	0	146	100	81	327
MLQ5X (All Others) [b]	0	0	0	0	0	174	129	100	403

[a] MDF was a three phase training with the same group of participants; demographics were collected only during phase one.

[b] N's have been collapsed to means by rater type so that each participant has no more than 1 coworker rating, 1 other rating, etc.

[c] Includes self (training participant) and three team members. Survey administrator did not distinguish participant from other team members.

Findings

Findings from the analyses of data from 3,046 survey instruments completed by 151 training participants and their supervisors, subordinates, and coworkers from 2005 to 2007 (Table 1) are presented in three sections to follow. The first section, **Background,** provides a brief review of participant demographics and training evaluation results for the relevant CLD and MDF trainings. The next section, **Leadership,** examines transformational, transactional, and passive-avoidant leadership as rated by leaders, subordinates, superiors, coworkers, and others. The final section, **Organizational Change,** examines organizational involvement, progress on key performance indicators, and leadership as an element of organizational context.

Background

Although participant demographics for all trainings evaluated during the pilot phase of the project were addressed in Bulletin 1, this section provides additional detail for CLD and MDF participants. Likewise, evaluation results from the pilot phase were previously addressed in Bulletins 1-3. Those results are summarized here as background for a discussion of findings regarding potential relationships between personal characteristics, training, leadership, and organizational change.

Participant Demographics

Demographics for the 151 CLD and MDF participants are provided in Tables 2-3. Note that demographic profiles are not included for the second and third phases of MDF because, with the exception of attrition, the same participants attended all three phases of the training.

In terms of gender ratio, less than 10% of MDF participants were female. On the other hand, about 50% of CLD participants were female. Overall about 60% of training participants were male.

Though race and ethnicity data were not collected for all trainings, available data indicate that about two-thirds of training participants were white. The remaining third were minorities, mostly African-American.

Over 80% of participants reported holding a college degree. About 72% reported having earned a bachelor's degree or higher. Nearly a third held graduate degrees. Juvenile CLD participants were the most highly educated, with over 93% having earned at least a bachelor's degree.

Not surprisingly, nearly all adult CLD participants reported working in adult corrections, while nearly all juvenile CLD participants reported working in juvenile corrections. About 88% of MDF participants reported working in adult prisons or community corrections. Overall about 64% of

participants worked in adult corrections while about 28% worked in juvenile corrections.

Job titles and responsibilities reported by training participants were largely consistent with the target audiences for each training. CLD participants were typically senior level leaders: facility superintendents, associate superintendents, or program directors/managers. MDF participants were typically mid-level leaders: captains and lieutenants. Salaries were commensurate with response-bilities. Adult CLD participants reported the highest salaries, on average, while MDF participants reported more modest salaries. Most CLD participants (82.8%) worked for state or county agencies. All MDF participants worked for the same state DOC.

Median age at the time of training was 42 (Table 3). Not surprisingly, the more senior personnel attending CLD were slightly older (44) than the mid-level personnel attending MDF (39). Participants averaged about 3 years on their current jobs, and 14 years total experience in corrections. Adult CLD participants reported slightly more total experience (about 16 years) than juvenile CLD participants (11.5 years) or MDF participants (13 years). As expected, juvenile training participants worked in considerably smaller facilities and agencies than adult training participants (adult CLD and MDF).

Training Evaluation Summary

At the conclusion of each training, participants were given written evaluation forms and asked to rate themselves, the training, and the trainers, in a variety of areas. Six months after each training, participants were mailed follow-up evaluation forms. Table 4 contains a summary of initial and follow-up evaluation results for the relevant CLD and MDF trainings. Scales varied for the 11 summary measures listed in the table; explanation and discussion of each follow. (See Bulletins 1-3 for additional findings and discussion.) Results were quite favorable for all trainings, though CLD trainings typically received somewhat higher ratings than MDF trainings.

At the end of each training, participants were asked to rate the extent to which they agreed or disagreed with a series of approximately 20 positively worded statements about the training. For example:

   a. Objectives were clear at the beginning of training.
   b. Content was clear and understandable.
   c. The pace of the training was conducive to learning.

Strongly disagree was coded as 1, disagree as 2, neutral as 3, agree as 4, and strongly agree as 5. The mean response for participants of all eight trainings was 4.33, or somewhere between agree and strongly agree with the positive statements. The mean rating was 4.58 for CLD trainings and 3.99 for MDF trainings.

The same scale was used to measure responses to a series of 10 statements about training relevance. The mean rating for all eight trainings was 4.25. Again, the mean rating was slightly higher for CLD trainings than for MDF trainings: 4.47 vs. 3.95. Relevance ratings for CLD trainings had dropped slightly by the time of the six month follow-up, from 4.47 to 4.15. Note that MDF utilized a different follow-up protocol that did not include this block of items. However, a similar pattern of somewhat lower follow-up ratings have been observed in nearly all trainings evaluated thus far (See Bulletin 1). It appears the realities of the workplace have a tempering effect on positive appraisals displayed at the time of training. This is part of a broader recurring theme addressed throughout the bulletin series involving estimated future application of training, estimated resources and barriers, progress on action plan goals, etc. (See especially Bulletins 4 and 5).

At the close of training, participants were also asked to rate individual trainers along several dimensions (See Bulletin 2 for detailed findings and discussion.) The mean rating for all trainers in the eight CLD and MDF trainings was 4.34, or somewhere between agree and strongly agree with the series of positively worded statements about the trainers. The mean rating for CLD trainers was 4.47 vs. 4.16 for MDF trainers. Several open-ended items were included to probe for additional comments about the strengths and limitations of the trainers. Content analyses of narrative responses revealed that participants on average provided almost two (1.77) more comments about trainer strengths than comments about limitations. (See Bulletin 2 for a detailed discussion of the identified strengths and limitations, and related findings.) CLD participants provided an average of 2.10 more remarks about strengths than limitations; the mean for MDF participants was 1.30.

Participants were also asked to rate the extent to which they anticipated applying what they learned in training to their jobs. The scale was from 0 (not at all) to 10 (a great deal). Participants overall anticipated a high level of future application of learning: 8.25. Again, the breakdown by type of training was slightly more favorable for CLD than for MDF: 8.73 vs. 7.59. Nonetheless, these initial estimates were later revised downward on the six month follow-up. Reported application of training to the job dropped from 8.73 to 7.00 for CLD participants. (Data are not available for MDF participants.)

Table 2: Participant Demographic Information (Categorical Variables)													
	Juvenile CLD				Adult CLD						MDF [1]		Overall	
	05-D101		06-D101		05-M101		05-M102		05-M103		05-R039			
	N	%	N	%	N	%	N	%	N	%	N	%	N	%
Gender														
Female	12	44.4	11	52.4	7	31.8	16	64.0	11	50.0	3	8.8	**60**	**39.7**
Male	15	55.6	10	47.6	15	68.2	9	36.0	11	50.0	31	91.2	**91**	**60.3**
Overall	27		21		22		25		22		34		**151**	**100.0**
Race/Ethnicity														
White/Caucasian	16	59.3	15	71.4	data not available				15	68.2	data not available		**46**	**65.7**
African-American	9	33.3	5	23.8					6	27.3			**20**	**28.6**
Hispanic/Latino	1	3.7	1	4.8					1	4.5			**3**	**4.3**
Other	1	3.7	0	0.0					0	0.0			**1**	**1.4**
Overall	27		21						22				**70**	**100.0**
Education														
H.S. Diploma/GED	3	11.1	0	0.0	7	31.8	3	12.0	4	18.2	12	35.3	**29**	**19.3**
Associate Degree	0	0.0	0	0.0	5	22.7	2	8.0	3	13.6	3	8.8	**13**	**8.7**
Bachelor's Degree	14	51.9	12	60.0	6	27.3	12	48.0	6	27.3	12	35.3	**62**	**41.3**
Master's Degree	10	37.0	7	35.0	4	18.2	5	20.0	9	40.9	7	20.6	**42**	**28.0**
Doctorate Degree	0	0.0	1	5.0	0	0.0	3	12.0	0	0.0	0	0.0	**4**	**2.7**
Overall	27		20		22		25		22		34		**150**	**100.0**
Area of Employment														
Adult Jails	0	0.0	0	0.0	6	27.3	10	40.0	5	22.7	0	0.0	**21**	**13.9**
Adult Prisons	0	0.0	0	0.0	12	54.5	9	36.0	10	45.5	21	61.8	**52**	**34.4**
Adult Community Corrections	1	3.7	0	0.0	4	18.2	4	16.0	6	27.3	9	26.5	**24**	**15.9**
Juvenile Detention	16	59.3	12	57.1	0	0.0	0	0.0	0	0.0	0	0.0	**28**	**18.5**
Juv Community Corrections	7	25.9	8	38.1	0	0.0	0	0.0	0	0.0	0	0.0	**15**	**9.9**
Other	3	11.1	1	4.8	0	0.0	2	8.0	1	4.5	4	11.8	**11**	**7.3**
Overall	27		21		22		25		22		34		**151**	**100.0**
Job Title/Duties														
Warden/Superintendent [2]	8	29.6	5	23.8	12	54.5	9	36.0	8	36.4	2	5.9	**44**	**29.1**
Program Manager/Director [2]	11	40.7	12	57.1	1	4.5	5	20.0	5	22.7	2	5.9	**36**	**23.8**
Captain/Major	0	0.0	0	0.0	1	4.5	2	8.0	6	27.3	7	20.6	**16**	**10.6**
Lieutenant	1	3.7	0	0.0	3	13.6	4	16.0	0	0.0	11	32.4	**19**	**12.6**
Probation/Parole Supervisor	2	7.4	4	19.0	3	13.6	2	8.0	0	0.0	5	14.7	**16**	**10.6**
Training/Classification Officer	2	7.4	0	0.0	0	0.0	0	0.0	1	4.5	4	11.8	**7**	**4.6**
Other	3	11.1	0	0.0	2	9.1	3	12.0	2	9.1	3	8.8	**13**	**8.6**
Overall	27		21		22		25		22		34		**151**	**100.0**
Salary														
20,001 - 40,000	4	14.8	4	19.0	0	0.0	0	0.0	0	0.0	14	41.2	**22**	**14.7**
40,001 - 60,000	18	66.7	8	38.1	7	31.8	13	52.0	12	57.1	20	58.8	**78**	**52.0**
60,001 - 80,000	5	18.5	8	38.1	7	31.8	9	36.0	5	23.8	0	0.0	**34**	**22.7**
80,001 +	0	0.0	1	4.8	8	36.4	3	12.0	4	19.0	0	0.0	**16**	**10.7**
Overall	27		21		22		25		21		34		**150**	**100.0**
Agency Type														
Federal	1	3.7	0	0.0	4	18.2	2	8.0	2	9.5	0	0.0	**9**	**6.0**
State	15	55.6	8	38.1	11	50.0	9	36.0	10	47.6	34	100.0	**87**	**58.0**
County	10	37.0	10	47.6	6	27.3	10	40.0	7	33.3	0	0.0	**43**	**28.7**
Other	1	3.7	3	14.3	1	4.5	4	16.0	2	9.5	0	0.0	**11**	**7.3**
Overall	27		21		22		25		21		34		**150**	**100.0**

[1] Except for attrition, the same group of participants attended all three phases of MDF (05R039, 06R012, 06R019).
[2] Includes assistant, associate, deputy, etc.

Another portion of the evaluation asked participants to rate the training in terms of progress they made on training-specific objectives during training, and during the follow-up period. The five point progress scale consisted of no progress (1), slight (2), moderate (3), substantial (4), and exceptional progress (5). Participants overall reported approximately substantial progress (3.86) on objectives during training, and moderate progress on objectives during the follow-up period (3.22). CLD participants reported slightly higher progress than MDF participants both during training (3.96 vs. 3.73) and during the follow-up period (3.24 vs. 3.04).

Finally, participants were asked to review a series of key activities related to training objectives and indicate which ones they had engaged in prior to training. Six months later, on the follow-up measure, participants were asked which of these activities they had engaged in since the training. CLD participants on average reported that they had engaged in 75% of the activities prior to training, and 94% of the activities during the follow-up period. (See Bulletin 3 for more detailed discussion of these findings. Data are not available for MDF.)

Table 3: Participant Demographic Information (Continuous Variables)

| | Juvenile CLD | | | | Adult CLD | | | | | | MDF | | Overall | |
| | 05-D101 | | 06-D101 | | 05-M101 | | 05-M102 | | 05-M103 | | 05-R039 | | | |
	N	Median	N	Median	N	Median	N	Median	N	Median	N	Median	N	Median
Age at the time of training	27	**46**	21	**42**	22	**46**	24	**42**	22	**45**	34	**39**	150	**42**
Years on current job	27	**3.5**	21	**3.0**	22	**3.5**	25	**2.5**	21	**4.5**	34	**5.0**	150	**3.0**
Years experience in juvenile/adult corrections	26	**12.5**	21	**10.0**	22	**15.2**	25	**16.0**	21	**16.0**	34	**13.0**	149	**14.0**
Directly supervise this number of staff	27	**8**	21	**8**	22	**12**	24	**11**	21	**6**	33	**10**	148	**10**
Ultimately responsible for this number of staff	27	**28**	21	**33**		NA		NA	21	**45**		NA	69	**35**
Number of staff at participant's office/facility	27	**50**	20	**64**	21	**146**	25	**275**	20	**161**	34	**25**	147	**77**
Total number of staff in participant's agency	23	**200**	19	**104**	16	**470**	23	**304**	17	**421**	32	**650**	130	**302**
Offender population at participant's facility	26	**89**	18	**196**	22	**740**	24	**977**	21	**881**	34	**400**	145	**426**
Offender population at participant's agency	23	**600**	18	**734**	17	**13000**	23	**8500**	18	**8750**	33	**5000**	132	**3244**

Table 4: Training Evaluation Summary (Initial and Follow-up)

	Juvenile CLD				Adult CLD						MDF						Overall		
	05-D101		06-D101		05-M101		05-M102		05-M103		05-R039		06-R012		06-R019				
	N = 24 - 27		N = 19 - 21		N = 15 - 22		N = 23 - 25		N = 16 - 22		N = 33 - 34		N = 24 - 26		N = 22 - 23				
	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	N	SD
Training Evaluation (Overall)	**4.54**	0.31	**4.46**	0.40	**4.80**	0.23	**4.62**	0.20	**4.49**	0.42	**4.01**	0.51	**3.76**	0.68	**4.21**	0.45	**4.33**	198	0.54
Training Relevance (at close of training)	**4.38**	0.38	**4.32**	0.46	**4.65**	0.39	**4.60**	0.37	**4.38**	0.50	**3.99**	0.41	**3.78**	0.59	**4.10**	0.46	**4.25**	191	0.53
Training Relevance (at follow-up)	**4.12**	0.42		NA		NA	**4.18**	0.50	**4.16**	0.59		NA		NA		NA	**4.15**	66	0.49
Trainer Evaluation (Quantitative)	**4.47**	0.24	**4.37**	0.32	**4.45**	0.29	**4.52**	0.27	**4.53**	0.31	**4.24**	0.43	**3.98**	0.46	**4.22**	0.55	**4.34**	198	0.41
Trainer Evaluation (Qualitative)	**2.16**	1.11	**2.13**	1.27	**1.93**	1.24	**2.11**	1.44	**2.15**	0.91	**0.63**	1.11	**1.37**	1.24	**2.22**	1.86	**1.77**	198	1.39
Training Application (anticipated)	**8.44**	1.08	**8.43**	1.08	**9.36**	0.85	**8.72**	1.06	**8.71**	1.10	**7.36**	1.37	**7.23**	1.68	**8.36**	1.33	**8.25**	191	1.40
Training Application (follow-up reports)	**6.88**	1.62		NA		NA	**6.87**	1.18	**7.32**	1.49		NA		NA		NA	**7.00**	66	1.44
Progress on training-specific objectives during training	**3.98**	0.48	**3.81**	0.41	**4.26**	0.54	**3.76**	0.57	**3.99**	0.49	**3.59**	0.73	**3.59**	0.67	**4.09**	0.61	**3.86**	198	0.62
Progress on training-specific objectives after training	**3.37**	0.41	**3.17**	0.54		NA	**2.95**	0.51	**3.50**	0.47		NA		NA	**3.04**	0.68	**3.22**	101	0.54
Percentage of key activities participant engaged in prior to training	**0.78**	0.21	**0.66**	0.18	**0.85**	0.16	**0.70**	0.15	**0.79**	0.19		NA		NA		NA	**0.75**	112	0.19
Percentage of key activities participant engaged in after training	**0.98**	0.03	**0.92**	0.10	**0.94**	0.08	**0.92**	0.12	**0.95**	0.09		NA		NA		NA	**0.94**	102	0.09

Leadership

Like any complex topic, leadership can be productively viewed from multiple perspectives. For example, it can be both an important cause, e.g., of organizational change, and an important consequence, e.g., of training. Likewise, leadership can be viewed as both the behavior of individual leaders, and as a broader organizational condition experienced by members throughout the organization. Nonetheless, efforts to cover all perspectives, or strictly adhere to any single perspective, may prove cumbersome and ineffectual. The approach taken in the current section is to focus on *individual leadership behaviors as potential consequences of training*, and yet consider other perspectives where it seems productive to do so. Note that several of these are addressed in greater detail in the section on organizational change, including leadership as a potential source of organizational change, and leadership as an organizational condition in itself.

Leadership was assessed via the Leadership Practices Inventory (LPI) and the Multifactor Leadership Question-naire (MLQ). These well-established 360 degree feedback instruments rate leadership behaviors from a variety of perspectives. In addition to rating their own leadership behaviors, each training participant is also rated by numerous subordinates, superiors, laterals, and others. For Adult CLD participants, individual leadership was assessed via the LPI, and collective leadership was assessed via the Team Multifactor Leadership Questionnaire (TMLQ). For MDF participants, individual leadership was assessed via the MLQ5X. Note that LPI and MLQ data were incomplete or unavailable for Juvenile CLD trainings 05-D101 and 06-D101, and for the Adult CLD training 05-M103.

Both the LPI and the MLQ assess transformational leadership behaviors. *Transformational leadership* inspires subordinates to transcend self-interest for the betterment of the organization and its members. In the LPI, transformational leadership is conceptualized as:

a. Modeling the way
b. Inspiring a shared vision
c. Challenging the process
d. Enabling others to act
e. Encouraging the heart

In the MLQ, transformational leadership is conceptualized as:
a. Idealized influence (attributed)
b. Idealized influence (behavior)
c. Inspirational motivation
d. Intellectual stimulation
e. Individualized consideration

In addition to measuring transformational leadership, the MLQ also measures several types of transactional leadership and passive-avoidant leadership. *Transactional leadership*, such as contingent reward or active manage-ment by exception can be characterized as quid pro quo, or leadership based on reinforcement and exchanges. For example, expressing satisfaction or providing assistance in exchange for the efforts of subordinates would be considered contingent reward. Focusing attention on irregularities, mistakes, and exceptions would be considered active management by exception. *Passive-avoidant leadership*, on the other hand, is characterized by avoiding or delaying important decisions or action. For example, failing to intervene until problems become serious would be considered passive management by exception. Likewise, to avoid making decisions or delay responding to urgent questions would be considered laissez-fair behaviors.

Clearly, passive-avoidant leadership can be detrimental to the organization and its members, and should be minimized where possible. Transformational leadership, on the other hand, can be broadly beneficial the organization, including leaders, subordinates, and other persons affiliated with the organization. Transformational leadership is a central topic in many leadership and management development training programs. Nonetheless, transactional leadership is typically the more common leadership style in most organizations. Transactional leadership is not necessarily at odds with transformational leadership. In fact, transactional leadership can be a functional and complementary base on which to develop transformational leadership. As such, it is not necessarily appropriate to target transactional leadership behaviors for reduction, as is typically done with passive-avoidant leadership behaviors. A more productive approach would be evaluate transactional leadership relative to transformational leadership. In short, a common goal of leadership training is to increase the frequency of transformational leadership relative to transactional leadership, while reducing passive-avoidant behaviors as much as possible.

CLD Training and Individual Leadership

Table 5 provides a summary of LPI results for Adult CLD participants prior to, and six month after the training. The upper section of the table contains findings for each of the five transformational leadership practices, and overall ratings, from the perspective of direct reports. The lower section of the table contains findings from the perspective of all other raters. Note that results are weighted by rater type, not rating. For example, where one manager and four coworkers rated a leader, the manager rating would carry the same weight as the average of the four coworker ratings. "N" refers to the number of raters and the number of leaders rated. For example, N = 96 on 19 in the upper left of Table 5 indicates that 96 direct reports rated 19 leaders (training participants), i.e., approximately five direct reports rated each leader. Note also that the "Change" column refers to the *mean change score*, not the *change in mean scores*. The distinction is important because this quantity includes only participants for whom both pre and post data are available, and represents the average pre-to-post change for *individual* participants. Thus the change column is *not* simply the mathematical difference between the pre and post columns; it provides different information. Immediately apparent in Table 5 is that

*both pre and post-training
LPI scores are quite high, and
all change scores are positive.*

*perhaps more important than
the **statistical significance** of **absolute increases**,
is the **practical significance** of **relative increases.***

These are favorable and important findings for several reasons. First, in terms of transformational leadership, CLD participants were quite effective even before attending the training, in that they "fairly often" to "usually" practiced transformational leadership (see scale at the bottom of Table 5). Second, despite relatively high pre-training levels, participants of both trainings demonstrated additional gains in transformational leadership after training. Third, the magnitude and pattern of the findings were statistically, logically, and practically significant. Finally, these results are based on a variety of data from subordinates, superiors, and laterals of the leader in question; on average, about seven raters per leader. Data such as these, commonly referred to as "360 degree" data, provide a more complete and objective view of leadership practices than is available from self-reported data alone.

With regard to the first point, high pre-test scores can be cause for concern in some situations. For example, if participants in a skills-based training demonstrate high levels of the relevant skills even prior to training, they may have been inappropriately selected to attend the training. However, in the case of advanced leadership training, it is not surprising that senior-level leaders would have developed a variety of leadership skills prior to training. The demographic profiles in Table 2, particularly job titles/ duties, and the post-training leadership gains evident in Table 5 suggest that participants selected for CLD training were consistent with the target audience.

Although gains of less than one point on a ten point scale may seem small, the primary LPI change scores were statistically significant. For example, the overall LPI gain score of 0.38 (from 7.58 to 7.96) was found to be significantly significant: t(27)=3.66, p=.001. Likewise, the overall gain score of 0.56 on ratings by direct reports (from 7.44 to 8.00) was also significant: t(19)=3.10, p=.006. Similar results were obtained for other raters, i.e., the mean gain of 0.29 (from 7.69 to 7.98) was also statistically significant: t(27)=3.16, p=.004. However,

For example, the mean gain score of 0.56 on ratings by direct reports equates to an absolute increase of 7.5% on the LPI scale for leaders whose mean LPI rating increased from 7.44 before training to 8.00 after training. However, this same 0.56 increase represents 21.9% of the maximum possible increase, i.e., from 7.44 to 10.0. Likewise, ratings from all others except direct reports increased 12.6% of the maximum possible increase. (Overall, the mean LPI gain based on all raters was 15.7% of the maximum possible increase on the LPI.) This alternate view of LPI gains as relative to the maximum possible gain is more useful in that it more closely approximates the magnitude of the change as experienced by the subordinates, superiors, laterals, and others who interacted with and rated the leader in question. The daily experience and perceptions of these persons, especially subordinates, provide useful proximal or intermediate measures of leadership.

Although the relative magnitude of LPI gains is important, so is the overall pattern of findings. For example: 1) all mean change scores were positive; 2) mean ratings for 05-M101 participants increased more than mean ratings for 05-M102 participants in 9 of 10 instances; and 3) mean ratings from direct reports increased more than mean ratings from other raters in 9 of 10 instances. These patterns are important because they suggest causes and consequences of the leadership gains, and provide

Table 5: Individual Leadership by Adult CLD participants (as measured by the LPI)

Leadership as rated by **Direct Reports**	Pre				Post				Change			
	05-M101		05-M102		05-M101		05-M102		05-M101		05-M102	
	N = 96 on 19		N = 104 on 24		N = 28 on 7		N = 49 on 13		N = 28 on 7		N = 49 on 13	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD
Model the Way	8.14	1.03	7.65	0.87	8.67	0.73	7.91	0.88	0.82	1.25	0.42	0.84
Inspire a Shared Vision	7.75	1.02	6.55	1.40	8.42	0.49	7.33	1.09	0.96	0.72	0.72	1.00
Challenge the Process	7.77	0.97	6.79	1.28	8.02	0.58	7.29	0.96	0.56	0.60	0.42	0.74
Enable Others to Act	8.47	1.06	8.16	0.89	8.83	0.42	8.33	1.18	0.43	1.00	0.19	0.81
Encourage the Heart	8.08	1.12	7.05	1.26	8.76	0.48	7.68	1.35	0.92	1.07	0.59	1.06
Overall	8.04	0.90	7.24	1.01	8.54	0.45	7.71	0.97	0.74	0.82	0.47	0.83

Leadership as rated by **All Others** (Self, Manager, Coworkers, Others)	Pre				Post				Change			
	05-M101		05-M102		05-M101		05-M102		05-M101		05-M102	
	N = 68 on 22		N = 75 on 24		N = 21 on 10		N = 49 on 18		N = 20 on 10		N = 46 on 18	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD
Model the Way	8.10	0.83	8.07	0.55	8.59	0.84	8.27	0.63	0.22	0.46	0.18	0.48
Inspire a Shared Vision	7.51	1.12	7.03	0.79	8.08	0.79	7.31	0.69	0.33	0.90	0.29	1.02
Challenge the Process	7.36	1.22	7.05	0.74	8.07	0.70	7.13	0.97	0.68	0.83	0.16	0.73
Enable Others to Act	8.34	0.71	8.31	0.54	8.75	0.73	8.29	0.54	0.35	0.53	0.03	0.44
Encourage the Heart	7.91	1.17	7.56	0.90	8.44	1.07	7.75	0.84	0.17	0.64	0.43	0.76
Overall	7.84	0.93	7.60	0.55	8.39	0.73	7.75	0.52	0.35	0.50	0.22	0.53

Note: LPI refers to Leadership Practices Inventory by Kouzes and Posner. Scale is: 1 = Almost never; 2 = Rarely; 3 = Seldom; 4 = Once in a while; 5 = Occasionally; 6 = Sometimes; 7 = Fairly often; 8 = Usually; 9 = Very frequently; 10 = Almost always. N's refer to the number of raters and the number of leaders rated. For example, "N = 96 on 19" indicates that a total of 96 direct reports rated 19 leaders. N's for "All Others" have been collapsed to means by rater type so that each participant has no more than 1 coworker rating, 1 other rating, etc.

additional evidence that the measured gains are real, not erroneous or random fluctuations. For example, higher mean ratings from subordinates, superiors, laterals, and others on transformational leadership practices after training, suggest that CLD effectively increased transformational leadership. Not only were raters positioned throughout the organizational hierarchy, they belonged to a variety of correctional organizations, i.e., CLD participants (and consequently, their raters) were drawn from around the country. Other than similar work, the main commonality among training participants was increased LPI scores after CLD training.

The somewhat different results for the two CLD trainings do not detract from the conclusions that CLD effectively increased transformational leadership practices. On the contrary, the fact that participants from the two trainings received such **consistently** different ratings supports this conclusion, because the gains were clearly patterned by training. Thus, despite the fact that one training appears to have been slightly more effective than the other, both appear to have been effective at increasing the frequency of transformational leadership practices as measured by the LPI. Likewise, the larger increases evident in subordinate (direct report) ratings versus other raters also does not detract from this conclusion. On the contrary, the **consistently** larger increases in ratings by direct reports is consistent with the logic that

*real change in leadership
is **most evident** to those being led,
i.e., subordinates, especially direct reports.*

Multivariate findings further support the conclusion that CLD training effectively increased transformational leadership. Similar to the approach taken in Bulletins 3 and 5, potential predictor variables were divided into three models:

1. **pre-training measures**, such as education and experience
2. **training measures,** such as training quality and trainer effectiveness
3. **post-training measures,** such as organizational resources and barriers

Multiple regression analyses based on these models produced several statistically significant findings consistent with results discussed thus far.

The **pre-training** model, most notably the experience measure, was a significant predictor of follow-up LPI ratings provided by both direct reports and other raters. However, while this model was a reasonably good predictor of direct report ratings (adjusted R^2 = .316, $F_{4,15}$=3.193, p = .044), it was a very good predictor of ratings from superiors, laterals, and others (adjusted R^2 = .462, $F_{4,23}$=6.793, p = .001). More precisely, the pre-training model explained 31.6% of the variation in follow-up

LPI ratings by direct reports with a 4.4% probability that differences in ratings were due to chance alone. On the other hand, this model accounted for 46.2% of the variation in follow-up LPI ratings by other raters, with a 0.1% probability that differences in ratings were due to chance alone.

The **training model,** primarily trainer and training evaluation ratings provided by CLD participants (leaders) at the conclusion of training, was predictive of the leadership ratings they would receive from direct reports six month later (adjusted R^2 = .423, $F_{4,15}$=4.481, p = .014). However, the training model was not predictive of leadership ratings provided by other types of raters on the six month follow-up (adjusted R^2 = .164, $F_{4,23}$=2.326, p = .087).

The **post-training model,** primarily organizational resources and barriers, was not a reliable predictor of follow-up LPI ratings provided by direct reports (adjusted R^2 = .205, $F_{4,15}$=2.227, p = .115). However, this model was a moderately good predictor of follow-up LPI ratings provided by superiors, laterals, and other raters (adjusted R^2 = .382, $F_{4,22}$=5.016, p = .005).

Taken together, results of multiple regression modeling suggest that direct reports see their leaders differently than other persons in the organization see them. Direct reports typically gave higher ratings on transformational leadership for leaders who reported getting more out of the CLD training. Personal characteristics of the leader, such as experience, were of secondary importance, and organizational factors were unimportant. However, a different picture emerges for raters other than direct reports. For them, transformational leadership ratings were most closely associated with personal characteristics of the leader in question. Organizational factors were of secondary importance, and CLD training measures were unimportant. These multivariate results and conclusion are generally consistent with the univariate findings presented in Table 5, where direct reports noticed much larger transformational leadership gains (more than double) in their leaders after CLD than reported by other raters.

CLD Training and Collective Leadership

Although CLD participants attended training as individuals, they each functioned as part of a leadership team upon returning to their organization. As such, they were asked to name three coworkers with whom they shared team leadership responsibilities. The Team Multifactor Leadership Questionnaire (TMLQ) was administered to the four team members at each organization prior to, and six months after the CLD training. Unlike the LPI, which measures individual leadership, the Team MLQ is designed to measure **collective leadership**. Note that collective or team leadership, as discussed here, refers to leadership **by** the team, not leadership **of** the team. The TMLQ, like other versions of the MLQ, measures three types of leadership:

- transformational leadership
- transactional leadership
- passive-avoidant leadership

and three outcomes:

- extra effort
- effectiveness
- satisfaction

Univariate (descriptive) findings for these measures and their subscales are provided in Table 6. Note that results are derived from mean team ratings where each team member was weighted equally, i.e., the training participant was not distinguished from the other team members during data collection. "N" refers to the total number of raters (team members) and the number who attended CLD. For example, N = 85 on 21 in the upper left of Table 6 indicates that 85 team members, 21 of whom attended CLD, rated 21 teams. Note also that the "Change" column refers to the mean change score, not the change in mean scores. The distinction is important because this quantity includes only teams for whom both pre and post data are available, and represents the average pre-to-post change for those teams. Thus the change column is *not* simply the difference between the pre and post columns; it provides different information. Finally, note that the five point (0-4) leadership scale differs from the 10 point (1-10) scale used in the LPI (Table 5). The outcome measures in Table 6 also utilize different scales (see bottom of table).

More important than any single finding in Table 6 is that Team MLQ results overall are very favorable and consistent with findings and conclusions from the LPI. Pre-training measures of *transformational leadership* were quite high, averaging 2.85 on a 0-4 scale, i.e., teams demonstrated transformational leadership "fairly often." As mentioned previously, relatively high levels of transformational leadership prior to training is not surprising given the target audience is senior leaders.

Despite high pre-training baselines, teams experienced additional increases after training. The mean gain in transformational leadership was 0.21 (from 2.85 to 3.06).

Though seemly small, this gain was statistically significant: $t(30)=3.526$, $p=.001$. Nonetheless, a gain of 0.21 on a five point scale is a rather abstract quantity, which may be cumbersome to evaluate for practical significance, or compare with measures derived from other scales, e.g., LPI change scores. A more intuitive way to view this quantity is relative to the maximum possible increase. In this case, the maximum possible increase in mean TMLQ ratings was 1.15 (from 2.85 to 4.00). Thus a gain of 0.21 represents 18.3% of the maximum possible gain for those teams on the TMLQ.

The magnitude of this gain, relative to the maximum possible gain, suggests it is practically significant in addition to statistically significant. Note also that the mean TMLQ gain of 18.3% is very close to the mean overall LPI gain of 15.7%. Such similar findings from two independently developed and validated instruments, completed by two different groups[3] of people, strongly suggest that the measured gains reflect actual increases in transformational leadership by team members. At a minimum, these findings are meaningful in the sense that other members of the organization who did not attend the training noticed and responded to the changes. Note that these and other proximal and intermediate outcomes are discussed in the remainder of this section as appropriate; more distal or ultimate outcomes are discussed in the section on organizational change.

Table 6: Team Leadership by Adult CLD Participants (as measured by the TMLQ)

Leadership as rated by the **Team** (training participant and 3 team members who did not attend training)	Pre				Post				Change			
	05-M101		05-M102		05-M101		05-M102		05-M101		05-M102	
	N = 85 on 21		N = 96 on 24		N = 48 on 12		N = 75 on 19		N = 48 on 12		N = 75 on 19	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD
Idealized Attributes	3.22	0.48	3.06	0.43	3.27	0.45	3.30	0.38	0.12	0.37	0.26	0.30
Idealized Behaviors	2.92	0.43	2.72	0.41	3.09	0.44	2.98	0.42	0.19	0.33	0.27	0.42
Inspirational Motivation	3.00	0.58	2.80	0.46	3.21	0.47	3.13	0.53	0.26	0.48	0.32	0.43
Intellectual Stimulation	2.86	0.42	2.67	0.40	2.89	0.37	2.80	0.56	0.11	0.45	0.12	0.43
Individualized Consideration	2.98	0.50	2.74	0.51	3.06	0.45	2.97	0.42	0.14	0.38	0.27	0.50
Transformational Leadership	3.00	0.44	2.80	0.39	3.11	0.41	3.04	0.40	0.16	0.35	0.25	0.34
Contingent Reward	3.06	0.48	2.88	0.45	3.13	0.45	3.11	0.45	0.18	0.34	0.22	0.37
Management by Exception active	2.02	0.48	1.93	0.35	1.95	0.34	1.62	0.60	-0.15	0.49	-0.30	0.59
Transactional Leadership	2.54	0.30	2.40	0.28	2.54	0.29	2.36	0.37	0.02	0.15	-0.04	0.24
Management by Exception passive	1.04	0.49	1.12	0.49	1.04	0.50	0.84	0.40	-0.14	0.42	-0.32	0.39
Laissez-faire Leadership	0.79	0.43	0.93	0.43	0.74	0.43	0.73	0.36	-0.11	0.28	-0.15	0.44
Passive-Avoidant Leadership	0.91	0.44	1.02	0.43	0.89	0.45	0.78	0.36	-0.13	0.32	-0.24	0.38
Extra Effort	2.80	0.60	2.58	0.51	3.01	0.54	3.01	0.52	0.24	0.48	0.42	0.62
Effectiveness	3.84	0.73	3.55	0.56	3.96	0.67	3.93	0.51	0.22	0.51	0.32	0.44
Satisfaction	4.26	0.73	3.82	0.59	4.17	0.76	4.47	0.47	0.08	0.39	0.65	0.55
Outcome Measures (Not appropriate for combining)												

Note: TMLQ refers to the Team Multifactor Leadership Questionnaire developed by Avolio and Bass. Scale is: 0 = Not at all; 1 = Once in a while; 2 = Sometimes; 3 = Fairly often; 4 = Frequently or always, except for Effectiveness, where 1 = Not effective; 2 = Only slightly effective; 3 = Effective; 4 = Very effective; and Satisfaction, where 1 = Very dissatisfied; 2 = Somewhat dissatisfied; 3 = Neither satisfied nor dissatisfied; 4 = Fairly satisfied; 5 = Very satisfied. N's refer to the total number of raters and the number who attended training. For example, "N = 85 on 21" indicates that ratings were provided by 85 team members, 21 of whom attended training.

Transactional leadership, as measured by the TMLQ, includes contingent reward behaviors and active management by exception. As discussed in the section opening, transactional leadership is a common leadership style based on reinforcement and exchange. Although transactional leadership is widely acknowledged to be less effective than transformational leadership, it can be effective and is not necessarily at odds with transform-ational leadership. Nonetheless, training programs and leaders who emphasize transformational leadership will probably choose to deemphasize transactional leadership, especially active management by exception. For example, while quality assurance is important and leaders can not afford to ignore all mistakes, a focus on substandard exceptions or error counting can undermine efforts like inspirational motivation.

Transactional leadership results in Table 6 are quite favorable overall. The frequency of contingent reward behaviors by the leadership team rose slightly after CLD training. However, this is not particularly concerning since contingent reward levels remain comparable to the frequency of transformational leadership behaviors. Of greater concern is active management by exception, which should be happening much less frequently than contingent reward or the transformational leadership behaviors. The pre-training levels around 2.0 would be considered borderline high. However, active management by exception declined after training to a mean of 1.75. This decline was statistically significant, $t(30)=2.43$, $p=.021$, and positioned mean transactional leadership levels in a favorable range.

Passive-Avoidant leadership includes passive management by exception and laissez-faire leadership. As discussed in the section opening, passive-avoidant leadership is characterized by avoiding or delaying important decisions or action. Unlike transactional leadership, which is often appropriate, and can be effective to some degree, passive-avoidant leadership is largely ineffective and detrimental to organizations and their members. As such, organizations and leadership training programs commonly target such behaviors for reduction to the greatest extent practicable.

Passive-avoidant leadership results shown in Table 6 are quite favorable overall. The mean frequency of these behaviors by the leadership team prior to training was 1.02, or "once in a while." Passive-avoidant levels in this range would be considered borderline high. However, after training these behaviors declined to a mean of 0.83. This decline was statistically significant, $t(30)=3.01$, $p=.005$, and positioned mean passive-avoidant leadership levels in a more favorable range.

The TMLQ also contains three *outcome measures,* as reflected in the lower section of Table 6. Prior to CLD training, the level of *extra effort* exerted by leadership teams averaged 2.66, or "sometimes" to "fairly often." However, six months after one of the team members attended CLD, the team reported mean extra effort levels of 3.01. The mean gain of 0.35 was statistically significant,

$t(30)=3.41$, $p=.002$, and represented 26.1% of the maximum possible gain.

Team effectiveness prior to training averaged 3.66, or somewhere between "effective" and "very effective." Note that the scale used for team effectiveness differs from scales used elsewhere on the TMLQ (1 = not effective, 2 = only slightly effective, 3 = effective, 4 = very effective, 5 = extremely effective.) Six months after one of the team members attended CLD, mean team effectiveness had increased to 3.94. The mean gain of 0.28 was statistically significant, $t(30)=3.35$, $p=.002$, and represented 20.9% of the maximum possible gain.

Team satisfaction prior to training averaged 3.92, or "fairly satisfied." Note that the scale used for team satisfaction differs from scales used elsewhere on the TMLQ (1 = very dissatisfied, 2 = somewhat dissatisfied, 3 = neither satisfied nor dissatisfied, 4 = fairly satisfied, 5 = very satisfied.) Six months after one of the team members attended CLD, mean team satisfaction had increased to 4.35. The mean gain of 0.43 was statistically significant, $t(30)=4.27$, $p<.001$, and represented 39.8% of the maximum possible gain.

MDF Training and Individual Leadership

MDF participants pursued both individual leadership development goals, and collective organizational goals, over a period of approximately 18 months during the three phases of training. Collective goals, related to organization-wide key performance indicators (KPI), are covered in the organizational change section to follow. The current section covers individual leadership development as measured by the MLQ5X.

Table 7 provides a summary of univariate (descriptive) MLQ5X results for MDF participants just prior to each of the three phases of training. Over 700 surveys were completed by leaders (training participants) and their subordinates, superiors, peers, and others. Note that the "Change" column refers to *mean change scores* for *individual* leaders/participants, not the *change in mean scores* for the *groups*. The distinction is important because mean change scores for individuals include only those participants for whom both phase 1 and phase 3 scores are available. Thus the change column is *not* simply the difference between the phase 1 and phase 3 columns; it provides different information.

Despite MDF participants reporting moderate progress on leadership development goals on the six month follow-up after each phase of training, the MLQ5X revealed few significant changes in leadership or outcomes. The largest change in leadership from the perspective of subordinates was the -0.32 change in management by exception (active). A reduction in this leadership behavior is generally viewed as favorable. However, the change was not statistically significant: $t(22)=1.522$, $p=.142$. Nonetheless, a change of this magnitude represents 19.2% of the maximum possible reduction and would appear to be of some practical significance, in that direct reports noticed

this change in leadership more than any other group. Note that in this case the lack of statistical significance stems in part from the low N (number of cases with available data on both MDF-1 and MDF-3) and high standard deviation (the change scores were somewhat erratic, varying a large amount from case to case.)

The biggest change in leadership from the perspective of all other raters (lower section of Table 7) was also a reduction in management by exception (active), -0.29. However, in this case the reduction was statistically significant: t(70)=2.802, p=.007. The change represents 19.5% of the maximum possible reduction in active management by exception, almost identical to the reduction from the perspective of direct reports. The primary reason this change was statistically significant while the other, nearly identical change was not, is the larger number of cases. Both should probably be considered to be of some practical significance.

No other MLQ5X change scores were statistically significant. MDF participants themselves reported no significant changes in their leadership from Pre 1 to Pre 3. However, it is important to note that MDF participants on average had fairly good MLQ5X ratings even prior to attending phase one of the training (Pre 1 column). Fairly good pretest scores combined with no measured pre-post change suggests that either the specification of the target audience or the participant selection process was flawed. Alternatively, it is possible that the MLQ5X may not be an appropriate instrument for use with MDF.

The current section examined changes in individual leadership behaviors as potential consequences of training. Although leadership was examined from a "360 degree" perspective, the focus was primarily on leadership as the

individual expression of behaviors, not on leadership as the *collective perception* of a broader organizational condition. This and other organization-wide issues are discussed next.

Table 7: Individiual Leadership by MDF participants (as measured by the MLQ5X)								
Leadership as rated by **Subordinates**	MDF-1 (Pre 1)		MDF-2 (Pre 2)		MDF-3 (Pre 3)		1 to 3 Change	
	N = 146 on 32		N = 100 on 28		N = 81 on 23		N = 81 on 23	
	Mean	SD	**Mean**	SD	**Mean**	SD	**Mean**	SD
Idealized Attributes	**3.20**	0.48	**3.23**	0.51	**3.33**	0.51	**0.04**	0.39
Idealized Behaviors	**2.82**	0.49	**2.90**	0.45	**2.85**	0.68	**-0.03**	0.54
Inspirational Motivation	**3.10**	0.48	**3.19**	0.43	**3.15**	0.68	**-0.09**	0.63
Intellectual Stimulation	**2.98**	0.56	**3.00**	0.43	**3.11**	0.46	**0.01**	0.51
Individualized Consideration	**3.18**	0.57	**3.18**	0.51	**3.24**	0.59	**-0.09**	0.57
Transformational Leadership	**3.06**	0.48	**3.10**	0.43	**3.13**	0.51	**-0.03**	0.44
Contingent Reward	**3.12**	0.56	**3.27**	0.44	**3.15**	0.56	**-0.09**	0.64
Management by Exception active	**1.62**	0.65	**1.40**	0.70	**1.35**	0.66	**-0.32**	1.00
Transactional Leadership	**2.37**	0.41	**2.34**	0.41	**2.25**	0.42	**-0.20**	0.63
Management by Exception passive	**0.79**	0.49	**0.60**	0.42	**0.67**	0.46	**0.00**	0.50
Laissez-faire Leadership	**0.44**	0.46	**0.33**	0.26	**0.33**	0.43	**-0.04**	0.55
Passive-Avoidant Leadership	**0.61**	0.44	**0.46**	0.29	**0.50**	0.39	**-0.02**	0.48
Extra Effort	**3.09**	0.57	**3.16**	0.55	**3.33**	0.75	**0.15**	0.71
Effectiveness	**3.36**	0.52	**3.46**	0.40	**3.46**	0.65	**-0.04**	0.55
Satisfaction	**3.41**	0.50	**3.51**	0.38	**3.48**	0.58	**-0.05**	0.51
Outcome Measures (Not appropriate for combining)								
Leadership as rated by **All Others** (Self, Supervisors, Peers)	MDF-1 (Pre 1)		MDF-2 (Pre 2)		MDF-3 (Pre 3)		1 to 3 Change	
	N = 174 on 34		N = 129 on 29		N = 100 on 25		N = 100 on 25	
	Mean	SD	**Mean**	SD	**Mean**	SD	**Mean**	SD
Idealized Attributes	**3.16**	0.55	**3.11**	0.51	**3.10**	0.58	**-0.08**	0.77
Idealized Behaviors	**2.89**	0.47	**2.94**	0.53	**2.92**	0.62	**0.02**	0.68
Inspirational Motivation	**3.03**	0.58	**3.02**	0.56	**3.01**	0.71	**-0.05**	0.72
Intellectual Stimulation	**2.88**	0.53	**2.92**	0.51	**2.83**	0.68	**-0.09**	0.82
Individualized Consideration	**3.07**	0.57	**3.06**	0.58	**3.02**	0.62	**-0.10**	0.73
Transformational Leadership	**3.01**	0.46	**3.01**	0.46	**2.98**	0.57	**-0.06**	0.67
Contingent Reward	**3.01**	0.50	**3.02**	0.52	**2.93**	0.54	**-0.11**	0.64
Management by Exception active	**1.61**	0.74	**1.38**	0.69	**1.21**	0.79	**-0.29**	0.88
Transactional Leadership	**2.31**	0.47	**2.20**	0.45	**2.07**	0.46	**-0.20**	0.46
Management by Exception passive	**0.69**	0.55	**0.68**	0.49	**0.67**	0.53	**0.01**	0.67
Laissez-faire Leadership	**0.38**	0.43	**0.35**	0.41	**0.36**	0.46	**0.02**	0.56
Passive-Avoidant Leadership	**0.54**	0.41	**0.52**	0.42	**0.52**	0.41	**0.02**	0.52
Extra Effort	**2.97**	0.67	**2.98**	0.60	**2.93**	0.71	**-0.07**	0.93
Effectiveness	**3.30**	0.55	**3.22**	0.57	**3.16**	0.67	**-0.18**	0.82
Satisfaction	**3.21**	0.57	**3.26**	0.56	**3.16**	0.62	**-0.08**	0.81
Outcome Measures (Not appropriate for combining)								

Note: MLQ5X refers to the Multifactor Leadership Questionnaire developed by Avolio and Bass. Scale is: 0 = Not at all; 1 = Once in a while; 2 = Sometimes; 3 = Fairly often; 4 = Frequently, if not always. N's refer to the number of raters and the number of leaders rated. For example, "N = 146 on 32" indicates that a total of 146 subordinates rated 32 leaders. N's for "All Others" have been collapsed to means by rater type so that each participant has no more than 1 coworker rating, 1 other rating, etc.

Organizational Change

Thus far the discussion of findings has focused on proximal or intermediate outcomes at the individual level. In this section, the focus shifts to more distal or ultimate outcomes at the organizational level. Three measures of organizational change are examined. First, organizational involvement in key activities related to training content was measured before and six months after leaders attended Adult and Juvenile CLD. Next, team progress on goals related to organization-wide key performance indicators (KPI) was measured six months after leaders attended Adult CLD and MDF. Finally, leadership as a broadly conceived element of organizational context was measured just before and six months after Adult CLD and MDF training.

Organizational Involvement

During the training, CLD participants were asked to rate the extent to which their organizations had been involved in each of 14 organizational level activities related to training content during the six months prior to training. For example:

- Effectively used teamwork to accomplish organizational objectives
- Developed a shared vision for the organization
- Followed a systematic plan of action to improve organizational leadership
- Enabled employees to act by sharing information and influence

Six months after training CLD participants were asked to rate organizational involvement in these activities since the training. The scale used for this was no involvement (0), minimal involvement (1), some involvement (2), frequent involvement (3), or heavy involvement (4).

Results are summarized in Table 8. On average, participants of all five CLD trainings reported increased organizational involvement. Overall, involvement in organizational level activities increased by 0.32, which represents a statistically significant gain: t(91)=3.31, p=.001. A change of this magnitude represents 16.5% of

the maximum possible gain. Moreover, these findings are very consistent with the increased transformational leadership reported by subordinates, superiors, laterals, and others after senior leaders attended CLD (Tables 5 and 6). In fact, there are numerous significant positive correlations between organizational involvement and transformational leadership as measured by both the TMLQ and the LPI, i.e., as transformational leadership increased, organizational involvement generally increased. For example, organizational involvement correlated with transformational leadership as measured by the TMLQ before training (r=.311, p=.037, N=45), after training (r=.370, p=.048, N=29), and for change scores (r=.381, p=.042, N=29). Likewise, organizational involvement correlated with transformational leadership as measured by the LPI before training (r=.299, p=.044, N=46) and after training (r=.429, p=.007, N=38). With one exception, neither transactional leadership nor passive-avoidant leadership correlated with organizational involvement in key activities. The exception was the contingent reward subscale which was positively correlated with organizational involvement prior to training (r=.343, p=.021, N=45), i.e., as contingent reward behaviors increased, organizational involvement generally increased also.

Overall, organizational involvement in key training-related activities increased in about 65% of the approximately 100 organizations represented by CLD participants after training. These increases were significantly related to increased transformational leadership after training.

Key Performance Indicators

As part of each training, MDF and CLD participants were asked to develop at least one key performance indicator (KPI) which they intended to improve in their organization as a result of training. KPI was defined as an overarching, organization-wide measure of a successful organization.

The process for selecting KPIs differed slightly for each training. The process utilized for MDF participants, in part because they were all from the same state agency, resulted in the selection of a single KPI, ***staff satisfaction***. MDF participants pursued the goal of improving this overarching KPI in formalized teams of 5 or 6, though each team employed different strategies and approaches. CLD participants, on the other hand, each developed their own KPI, though many settled on the same or similar KPIs. Some of the more common ones were ***staff morale, absenteeism, and retention.*** CLD participants pursued their KPI goals either as individuals, or as part of teams that were organized outside of training, as CLD participants were drawn from different agencies around the country.

Table 8: Organizational Involvement in Key Activities prior to and six months after Participant attended CLD training									
	Pre			Post			Change		
CLD Training:	Mean	N	SD	Mean	N	SD	Mean	N	SD
05-D101 (Juvenile)	1.92	24	0.89	2.31	26	0.63	0.30	23	0.92
05-M101 (Adult)	2.43	22	0.82	2.60	15	0.86	0.23	15	0.79
05-M102 (Adult)	1.99	25	0.76	2.42	23	0.77	0.41	23	0.97
05-M103 (Adult)	2.56	16	0.91	2.61	19	0.70	0.22	14	0.77
06-D101 (Juvenile)	1.48	19	0.89	2.02	19	0.85	0.40	17	1.10
Overall	2.06	106	0.91	2.38	102	0.77	0.32	92	0.91

Note: Scale is: 0 = no involvement; 1 = minimal involvement; 2 = some involvement; 3 = frequent involvement; 4 = heavy involvement. Organizational involvment data are not available for MDF trainings.

As part of the KPI development process during training, participants were asked to specify one or more means by which they would measure progress. On the six month follow-up, participants were asked to rate their progress according to the earlier established metric. Results are summarized in Table 9. On average, CLD participants reported slight progress on KPI goals after six months. MDF groups, however, reported moderate progress on KPI goals after phase one of training, substantial progress after phase two of training, and exceptional progress after phase three of the training. It seems reasonable that MDF participants made more progress achieving organizational level change on their key performance indicator at least partially because they benefited from working in teams where all members had attended the same training and developed their goals and strategies together. Drawing MDF participants from the same agency and conducting the training over three phases also may have played a role in greater progress on the KPI. However, sufficient data are not available to test this speculation.

A related finding of some concern is a strong negative correlation between transformational leadership and KPI progress for Adult CLD participants (05-M102), i.e., participants who received higher ratings from direct reports on the LPI reported less progress on KPIs (r= -.695, p=.012, N=12). Similarly, CLD participants who rated training quality higher at the time of training reported less progress on KPIs six months after training: r= -.501, p=.015, N=23. A more intuitive relationship was identified between experience in the field and KPI progress, i.e., more experienced participants were more likely to report greater progress on KPIs: r= .580, p=.004, N=23. However, as discussed previously, statistical significance does not ensure practical significance. Given that these findings are based on such limited data (small N's) and depart from clear patterns evident in findings presented thus far, they are of limited use without additional supporting evidence.

Leadership as Organizational Context

Leadership and organizational change are addressed in separate sections only for convenience of presentation. The distinction is artificial to the degree that leadership has both individual and organizational dimensions. Leadership behavior expressed by individuals was covered previously. The focus here is on

leadership experienced as part of the broader organizational context by members throughout the organization.

The nature of transformational leadership, what makes it transformational, is that it lies at the nexus of the individual and the organization, blending individual action, collective experience, and organizational outcomes. To the extent that leadership is transformational, what begins as individual behaviors and practices then inspires and enables subordinates, coworkers, and others to transcend self-interest for the betterment of the organization and its members. In short, transformational leadership not only can bring about positive organizational change, in this sense it *is* organizational change.

Several aspects of the LPI and the MLQ make them especially useful in revealing the organizational dimensions of leadership and clarifying it's role as part of the organizational context. First, the LPI and MLQ were developed and validated independently. Second, they each measure leadership from the perspective of multiple members positioned throughout the organizational hierarchy. Finally, the items on each instrument are phrased not only in terms of the leaders' actual behaviors, but in terms of the effects of those behaviors on subordinates and others. This is true to some degree with the MLQ, and to a greater degree for the LPI. For example, consider the items regarding:

- consensus building around organizational values
- supporting decisions of other people
- giving people choices about how to do their work
- recognizing people for commitment to shared values
- creatively rewarding people.

These items reach beyond individual behaviors to address a variety of issues that contribute to the way subordinates and others experience the organization. Changes in these measures, as reported by a variety of organizational members, provide strong evidence of changes in the organization.

From this perspective, a review of transformational leadership scores suggest broadly positive organizational changes for participants of Adult CLD trainings 05-M101 and 05-M102 (Tables 5 and 6). Although MLQ and LPI data are not available for the other three CLD trainings, a variety of other findings in the current bulletin (see Tables 4 and 8), and throughout the bulletin series, suggest that participants of the other CLD trainings shared similar results.

For MDF participants, however, the MLQ5X showed no significant changes in transformational leadership. Although this seems

Table 9: Progress improving organization-wide Key Performance Indicators in the six months after training												
	CLD 05-M102			MDF 05-R039			MDF 06-R012			MDF 06-R019		
Progress on KPI	**Mean**	N	SD	**Mean**	N	SD	**Mean**	N	SD	**Mean**	N	SD
	2.17	23	0.93	**3.00**	4	1.83	**4.20**	5	0.84	**5.00**	2	0.00

Note: Scale is 1 = no progress; 2 = slight progress; 3 = moderate progress; 4 = substantial progress; 5 = exceptional progress. For MDF, N = number of groups, each composed of 5-6 training participants. Data were collected six months after each training. KPI data are not available for the CLD trainings not listed in the table.

inconsistent with the good progress reported on key performance indicators, it is consistent with broader evaluation results for MDF. For example, among the training programs that received similar evaluations in the same time period (2005-06), MDF participants ranked their training program lowest overall (Bulletin 1, Figure 6), and ranked their trainers second lowest (Bulletin 2, Table 3).

On the other hand, these are relative rankings. In absolute terms MDF participants gave their training and trainers moderately positive ratings. Finally, as mentioned previously, it is possible that the MLQ5X may not have been the best choice for measuring management development among mid-level staff.

Summary and Recommendations

Data from over 3,000 surveys (Table 1) completed by 151 training participants and their subordinates, superiors, coworkers, and others, were analyzed for the bulletin. Leadership and organizational change were examined from several perspectives. In addition to conducting a series of univariate, bivariate, and multivariate statistical analyses, the research team adopted conceptual, methodological, and theoretical approaches where appropriate.

Findings suggest that:

1. ***Training can improve leadership***. Univariate results show broad significant improvement in leadership after CLD training (Tables 5 and 6). Though MDF participants do not follow this pattern (Table 7) they rated their trainings lower on most measures (Table 4). Multivariate results support this view. Participants' evaluation of training was predictive of transformational leadership as rated by direct reports six months after training (page 9).

2. ***Training can improve the organization.*** Organizational involvement in key training-related activities increased significantly after all five CLD trainings (page 13).

3. ***Leadership can improve the organization.*** There were numerous significant bivariate correlations between transformational leadership and organizational involvement as measured by both the TMLQ and the LPI (page 13).

4. ***Key Performance Indicators may be cause for concern.*** There was a strong inverse correlation between leadership and KPI progress for CLD participants (05-M102). Leaders who received higher transformational leadership ratings from their direct reports generally made less progress on their KPIs. MDF participants overall reported substantial progress on KPIs, while CLD participants reported slight progress (page 14).

5. ***Direct reports see their leaders differently*** than other members of the organization see them. Multivariate results indicate that direct reports typically give higher ratings on transformational leadership to leaders who

had previously rated their training highly. Personal characteristics of the leader were of secondary importance (page 9).

6. ***Other raters***' transformational leadership ratings, however, were most closely associated with personal characteristics of the leader in question. Leadership training and training quality were unimportant (page 9).

7. ***Transformational leadership,*** as measured and implicitly defined by the LPI, ***is conceptually and functionally equivalent to organizational change*** (page 14). To the extent that leadership is transforming, for example, by inspiring subordinates to transcend self-interest for the betterment of the organization, it represents organizational change.

8. ***Thus three dimensions of leadership*** emerge:

   - leadership as the expressed behaviors of individuals (may be a cause of organizational change)
   - leadership experienced as part of the broader organizational context by members throughout the organization (is part of the organization itself)
   - leadership conceived as transformational (this is change itself)

Based on these and other findings in the bulletin, consideration should be given to the following recommendations:

1. Future evaluations should examine potential relationships between transformational leadership and the pursuit of KPI goals.

2. Reevaluate the method by which CLD participants develop, select, pursue, and monitor progress toward KPIs.

3. Verify the appropriateness and utility of the MLQ5X as a feedback and evaluation instrument for MDF.

4. Evaluate additional MDF trainings to determine if, or to what extent, the identified patterns persist.

Future Directions

This bulletin contained evaluation results based primarily on analysis of "360" data collected from CLD and MDF training participants' superiors, subordinates, coworkers, and others. This is the only bulletin in the series to be based predominately on data from sources other than the training participants. Given a combination of factors, such as the multi-faceted "360" data collected, the magnitude of the gain in performance relative to the maximum possible gain, as well as the consistency between the univariate and multivariate analyses, it is possible for this bulletin to provide more complete, objective, and conclusive results concerning the effectiveness of the trainings.

Results presented in this bulletin contribute to the growing evidence that training can influence both leadership and organizational change. To illustrate, consistent gains in CLD leadership scores across multiple raters, provides additional evidence that positive change is real and not due to random error or exaggerated self-reports. Even though it was not possible with the evaluations discussed in this bulletin to construct rigorous research designs to confirm that training, and training alone, caused positive changes in both leadership performance and the organization, evidence does suggest that this indeed took place to varying degrees across the CLD and MDF training programs.

The next series of bulletins will present findings from the evaluation of online trainings that NIC is conducting or assisting with. Circumstances permit these evaluations to be more rigorous than those previously conducted. The increased rigor of a full experimental design will facilitate the testing of true cause-effect relationships between the trainings' performance objectives and their ultimate outcomes. This ever evolving progression for CwRC to conduct more complex and rigorous evaluation designs seems logical, since NIC is continually building additional capacity to conduct its own basic evaluations. This arrangement is mutually beneficial for both NIC and CwRC. In addition to the obvious benefits to NIC, such as saving tax dollars, improving training programs, reducing obstacles to learning, and improving staff attitudes toward evaluation, NIC will benefit from the more thorough and reliable findings made possible by a rigorous full experimental design.

While new data are being collected for the evaluation of the online trainings, CwRC will produce a final summary bulletin to synthesize and extend findings from bulletins 1-6 of the series. In addition to summarizing the major findings from this first series of evaluations, this bulletin will also present preliminary evidence of some very interesting theoretical models we have developed over the course of the project. These models should provide additional insight and guidance that may help NIC to further improve its trainings and make them even more efficient and effective.

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Notes

[1] The location of the bulletins is subject to change. If a search of the NIC website does not locate the bulletins, please contact Dr. James Wells at jbwells@cwrc.us or (859) 806-5748 for copies.

[2] Dillman, D. A. (2000). *Mail and telephone surveys: The total design method* (2nd ed.). New York: Wiley.

[3] The two groups did partially overlap. Certainly the training participant completed the "self" LPI and also was one of the four team members who completed the TMLQ. Any or all of the other three team members who completed the TMLQ may also have completed the LPI as a coworker (lateral). However, no subordinates, superiors, or others who completed the LPI should have completed the TMLQ. Thus, for example, the group of direct reports who completed the LPI should share no members in common with the group of team leaders who completed the TMLQ.