Summary Analysis
Rhode Island Department of Corrections'
Experimental Pilot: Staff Mindfulness/ Meditation and
Motivational Interviewing Skill Development

In the spring of 2012 the Rhode Island Department of Corrections (henceforth referred to as the 'department') began a collaboration with the Prison Mindfulness Institute to explore the efficacy of mindfulness meditation practice in terms of a) improving emotional resiliency and overall organizational culture; and, b) enhancing staff learning with Motivational Interviewing (MI). The National Institute of Corrections (NIC) agreed to provide some partial funding for this project and Justice System Assessment & Training (JSAT), a national corrections consulting firm, agreed to provide some pro bono as well as contract services to the project. The goal of this project was to learn more about how introducing staff to basic mindfulness/ meditation skills might impact staff climate/ culture, individual staff emotional resiliency and staff's ability to learn MI.

Study Design
The design for this project required drawing a convenient sample of approximately 60 staff comprised of probation/parole officers and institutional treatment staff. All the sample subjects were asked to complete a set of three surveys before anything else occurred in the project. The surveys the sample subjects completed were the Likert Organanizational Climate Survey (LOCS), the Five Facet Mindfulness Questionnaire (FFMQ) and the Assessing Emotions Scale (AES).

22 Volunteers were solicited within this sample and were identified as the experimental or 'trained' group. This group subsequently received three two-day training workshops: one in mindfulness/ meditation practice, one in Motivational Interviewing basic skills and a two day booster training that combined aspects of both previous trainings. In addition, the 22 members in the experimental condition were given opportunities to submit tapes of themselves demonstrating their MI skills for independent ratings with the Motivational Interviewing Therapeutic Integrity (MITI-3) scale as well as other relevant measures. These tape critiques then provided the foundation for subsequent phone-coaching sessions that were also provided to the participants in the 'trained' condition. Finally, the experimental group of staff also participated in 5-6 'Communities of Practice' for 2-3 hours of practice and sharing learning experiences dealing with meditation and MI.

Approximately one year after the project was initiated, all of the original 60 subjects forming both the control and experimental groups were requested to retake the surveys. Out of the original 60 who completed surveys at baseline, only 35 completed the surveys at time two, 20 controls (53% of the original controls) and 15 in the experimental group (68% of the original 'trained' group). 15 (68%) of the original 22 staff in the experimental group submitted taped sessions of themselves interacting with corrections clients at time two.

Sample Size(s).

	Begin	Two Surveys	Two Sessions	Analysis Groups
Total	60	35	15	35
Control	38	20		20
Trained	22	15	15	15

       In this project we were interested in what effects combining mindfulness/meditation practice instruction with MI instruction and follow-up training enrichments (e.g., tape critiques, phone coaching and CoP's) might have on learning, the individual's emotional well-being and the organizational culture. Therefore we selected and administered a set of pre/post surveys that might allow for us to determine if specific measureable effects might be suggested by significant differences between time-one and time-two across the two groups. We chose public domain tools with known properties that have been validated numerous times. LOCS would show possible climate/culture effects, the FFMQ was designed to pick-up on self-awareness and abilities to be reflective and the AES for assessing emotional intelligence.

       In the summary that follows, we limited our analysis to only the 35 original participants that completed both time-one and time-two surveys, including those in the experimental group that completed both time-one and time-two taped interview sessions.   This project was not funded as a research enterprise, the sample was small to begin with and therefore we are not concerning ourselves with testing for significant differences between the groups representing staff attrition and completers.

Demographics:
       As participants dropped away from the study some differences built-up between the control and trained group. For example, as indicated in the table below, the percent of white, female and younger staff increased for both groups. Thus a selection effect is present in our data for these attributes.
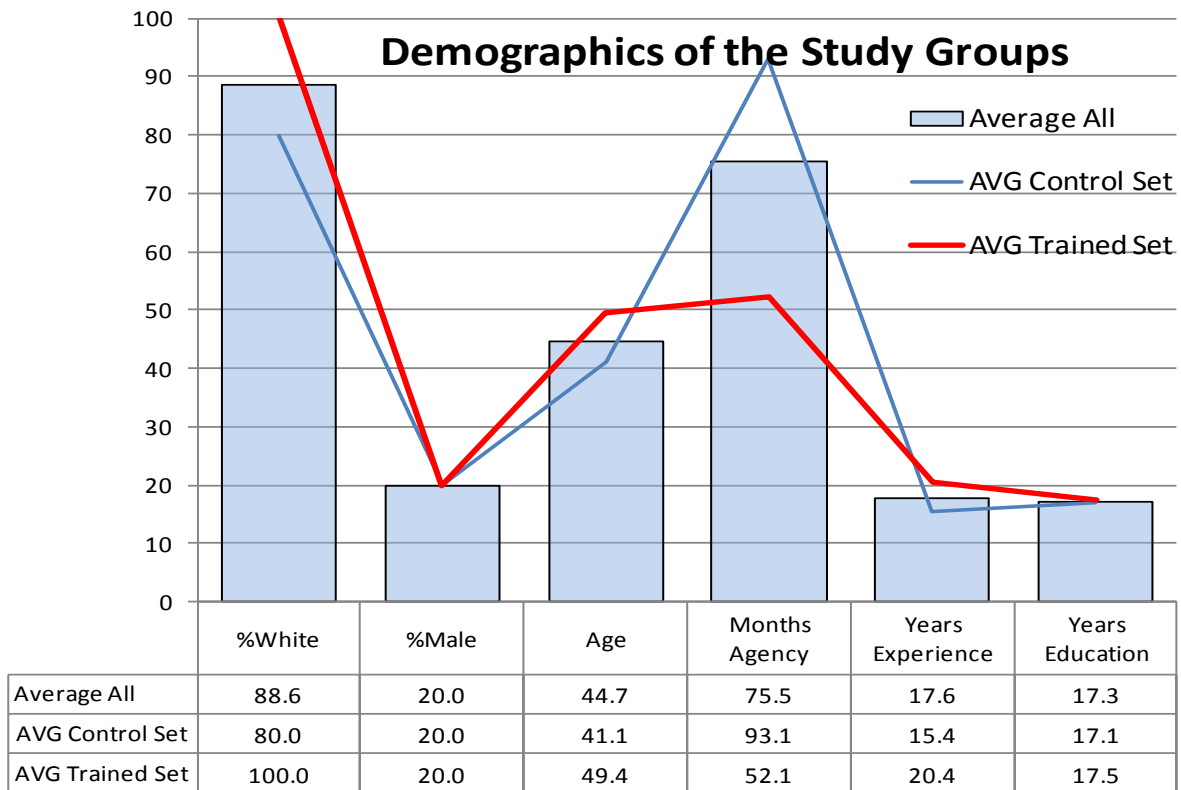
       After attrition, the control group had more minority representation (20%) than the experimental (0%), were younger (mean age of 41 vs 49) and had more seniority with the department but less years experience in corrections. The differences between the control and trained group on gender and education were only slight, measured in decimal points.

Sample Attrition Effects on Control & Trained Groups

Demographics of The Participants

Count:	Starting All Participants	Starting Control Group	Starting Trained Group	Two Surveys	Two Sessions	Analysis Control Group	Analysis Trained Group
Total	60	38	22	35	20	20	15
#White	43	24	19	31	17	16	15
#Male	15	10	5	7	4	4	3
Average Age	47	44	50	45	51	41	49
Years Experience	18	16	19	18	20	15	20
Months w Agency	75	87	46	76	49	93	52
Years Education	17	17	17	17	17	17	17
Percents:							
Percent White		72%	63%	86%	89%	85%	80%	100%
Percent Male		25%	26%	23%	20%	20%	20%	20%
Percent Under 40		23%	26%	18%	31%	20%	35%	27%
% >10 yrs Experience		72%	68%	77%	74%	80%	70%	80%
% >2yrs w Agency		60%	63%	55%	63%	55%	70%	53%
Percent with BA		90%	87%	95%	97%	95%	100%	93%

Group Demographics

Demographics of the Study Groups

	%White	%Male	Age	Months Agency	Years Experience	Years Education
Average All	88.6	20.0	44.7	75.5	17.6	17.3
AVG Control Set	80.0	20.0	41.1	93.1	15.4	17.1
AVG Trained Set	100.0	20.0	49.4	52.1	20.4	17.5

However, upon analysis, the only demographic category that was significantly different, statistically, was age. The trained group of staff were on average, eight years younger than the control group.

A standard and simple statistical measure called the "t-test" can indicate where any differences between the control and the trained groups are significant or unlikely by chance. The t-test gives a percentage probability that a measure is significantly different between the two groups, controlling for sample size. In simpler terms, a significant t-test result is a good indicator that the difference in means between two groups exceeds normal variation. A common rule-of-thumb is that a 95% t statistic means the difference is significant (unlikely to occur randomly more than one out of 20 times). The shadowed cell in the table below as well as following tables, indicates a significant difference was found.

Significantly Different Demographic Variables

T-Test Ethnicity	Gender	Age	Months Agency	Years Experience	Years Education
85%	23%	99%	89%	50%	80%

Survey Results:

Organizational climate (LOCS), mindfulness (FFMQ) and emotional resiliency (AES) surveys were taken by the subjects at the onset of the project and then again, approximately one year later. The surveys were completed on-line, using JSAT's website so that subjects could be more assured of anonymity. As mentioned earlier there was significant attrition in terms of the percentage of individuals that took the baseline survey and those at time-two, with only 53% of the controls and 68% of the trained group completing the final set of surveys.

The two groups differed significantly at baseline on two subscales: the average control score (9.60) on the LOCS Goals subscale was significantly higher than the trained group's (7.67) score; and, on Five Factor Mindfulness Questionnaire, the Act (with awareness) scale score (4.04) was also higher for the control group than the trained group (3.52) suggesting that the control group, as a whole might be somewhat stronger on task orientation than the trained group. The results of t-tests across the control and trained group means is reflected below.

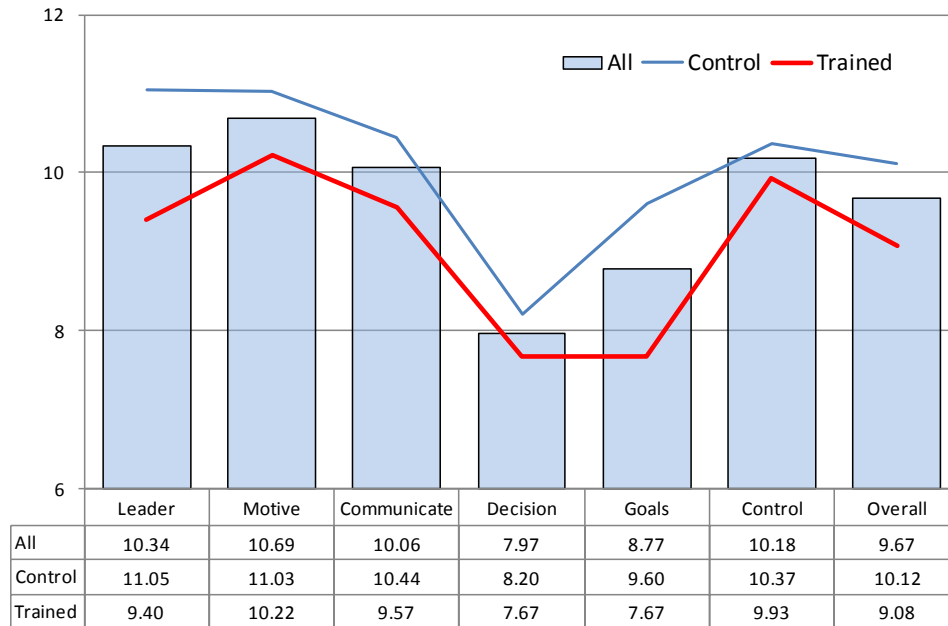# T-test for Differences in Control & Trained Group Survey Results at Baseline

The

Likert

Probability that the Baseline Attitude Survey Scores for the Trained Group and Control Group are Different						
LOCS Leader	LOCS Motive	LOCS Communicate	LOCS Decision	LOCS Goals	LOCS Control	LOCS Average
90%	75%	79%	66%	97%	67%	86%
FIVE FACET obsrv	FIVE FACET decrib	FIVE FACET act	FIVE FACET nonjudge	FIVE FACET nonreact	FIVE FACET TTL	
70%	82%	99%	63%	85%	85%	
AES Perceptions	AES Manage Self	AES Manage Others	AES Utilize	AES Total		
60%	58%	83%	66%	57%		

Organizational Climate Survey (LOCS) was used to learn if training in meditation and MI impacted staff's perceptions of their organization's operation and culture. The LOCS profile obtained at baseline for the two groups suggested the trained group of staff might hold a slightly more skeptical view regarding their organization than the control group. However there was only one subscale, Goals, where the difference reached statistical significance (98% or .02). Both profiles reflect ratings typical for corrections agencies with the overall score average falling slightly above or below a score of 10 (on a scale of 1 – 20), typical for paramilitary organizations that rely upon command and control procedures. Also typical for corrections profiles were the lower ratings around Decision-making and Goals in both the control and trained group profiles.
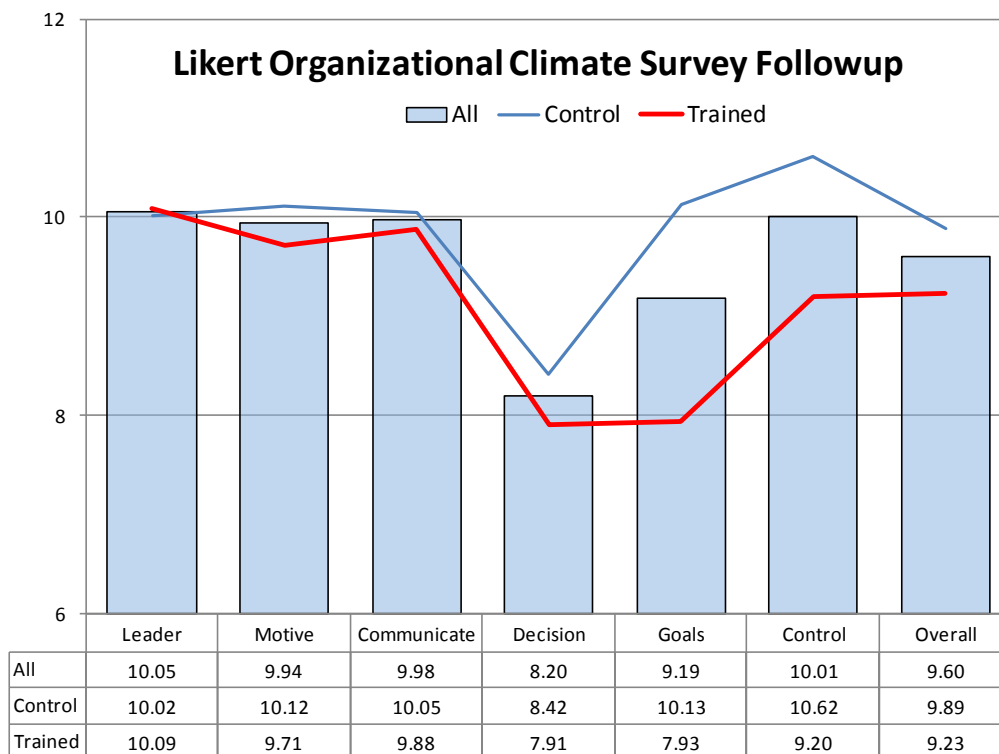
Before Training/ Coaching Baseline LOCS Survey

Likert Organizational Climate Survey Baseline

	Leader	Motive	Communicate	Decision	Goals	Control	Overall
All	10.34	10.69	10.06	7.97	8.77	10.18	9.67
Control	11.05	11.03	10.44	8.20	9.60	10.37	10.12
Trained	9.40	10.22	9.57	7.67	7.67	9.93	9.08

At follow-up, one year later the pattern at baseline was maintained, with the two groups continuing to differ on regarding goals but not on other LOCS subscales.

After Training/ Coaching Follow-Up LOCS Results

Likert Organizational Climate Survey Followup

	Leader	Motive	Communicate	Decision	Goals	Control	Overall
All	10.05	9.94	9.98	8.20	9.19	10.01	9.60
Control	10.02	10.12	10.05	8.42	10.13	10.62	9.89
Trained	10.09	9.71	9.88	7.91	7.93	9.20	9.23

In their changes between time-one and time-two the two groups approached significant differences on the Leadership (91%) and Control (82%) subscales but given the small sample size it is difficult to say more. In terms of the former Leadership subscale, the trained group's scores surged a bit higher in terms of positive views of leadership while control group's scores dropped. As regards the Control subscale however, the two groups appeared to diverge, with the trained group having lower scores and the control group higher at time-two.
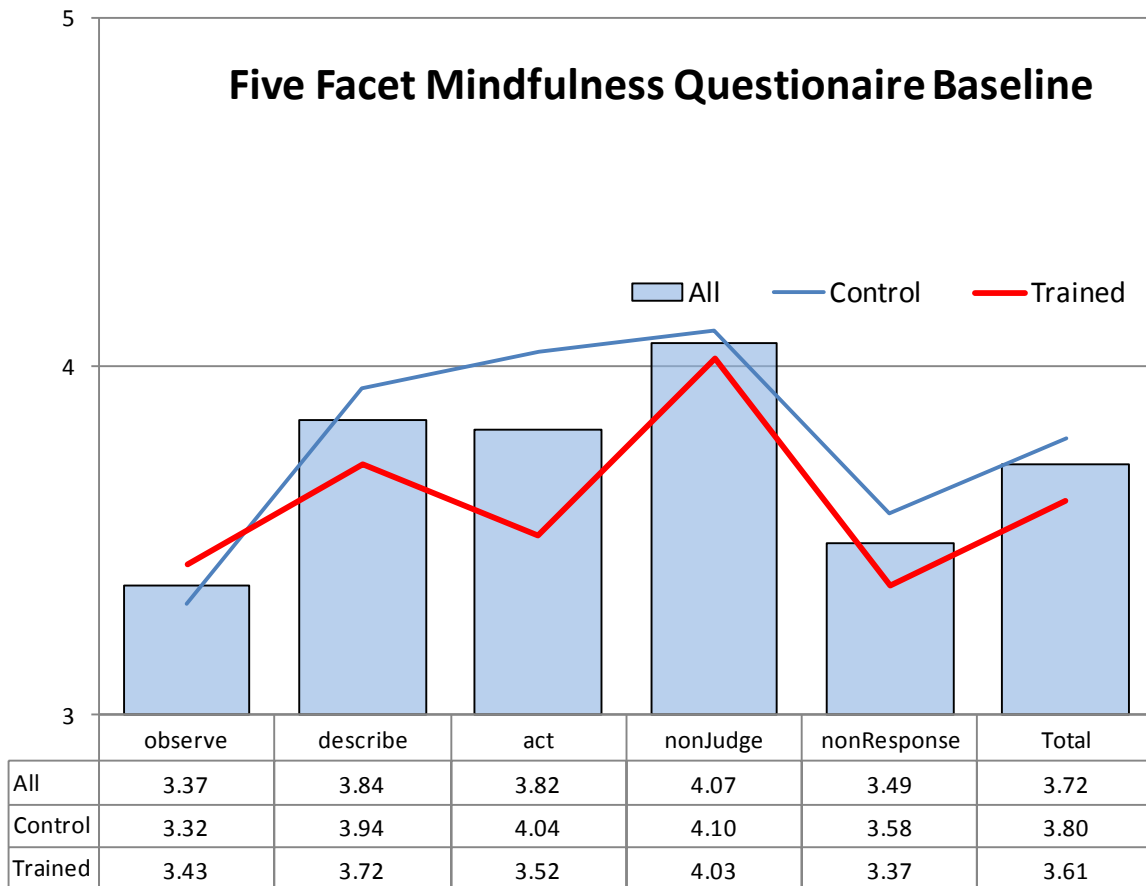
After Training/ Coaching LOCS Did <u>Not</u> Change Significantly Between Groups

Likert Organizational Climate Survey Change Following Coaching

	Leader	Motive	Communicate	Decision	Goals	Control	Overall
All	(0.30)	(0.74)	(0.09)	0.23	0.41	(0.17)	(0.07)
Control	(1.03)	(0.92)	(0.39)	0.22	0.53	0.25	(0.23)
Trained	0.69	(0.51)	0.32	0.25	0.27	(0.73)	0.15
T-test>95%	91%	62%	75%	51%	60%	82%	67%
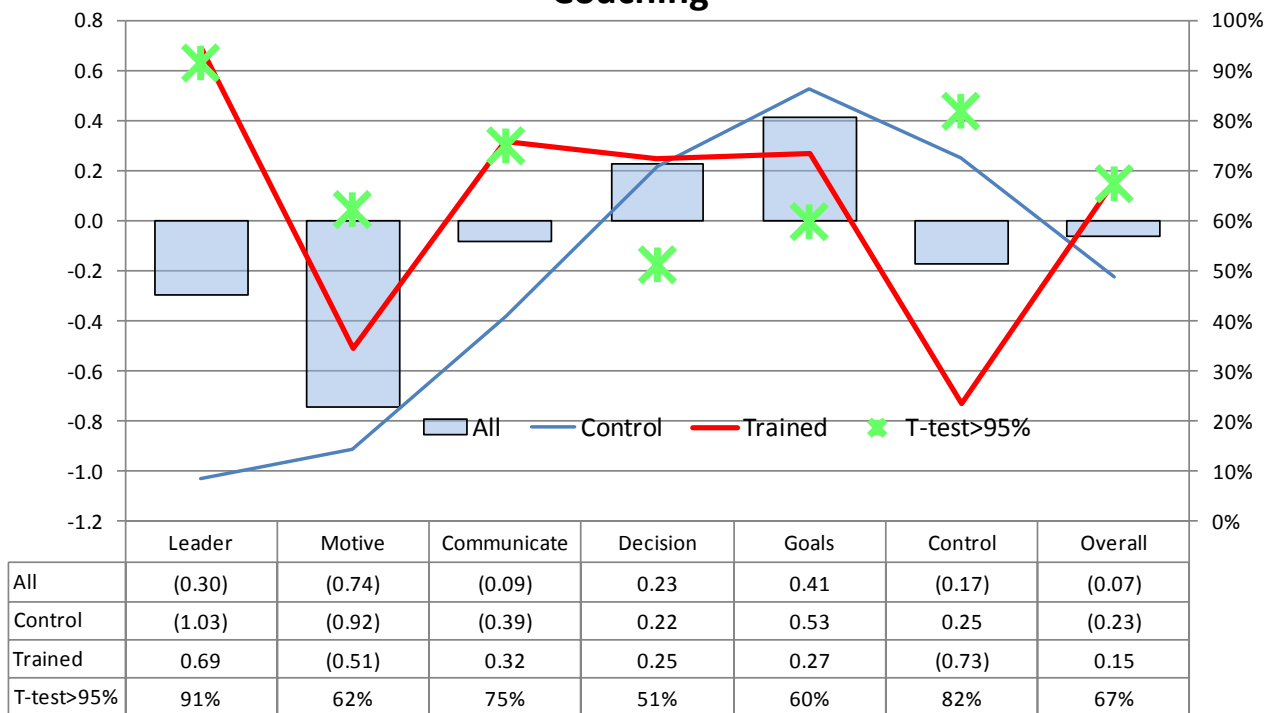
The Five Factor Mindfulness Questionnaire (FFMQ) was also used to survey the two study groups. The FFMQ has five different subscales: Observe; Describe; Act; NonJudge; and, NonResponse that assess different aspects of mindfulness. As mentioned earlier, the control group had a (statistically) significantly higher average score on Act than the trained group at baseline.
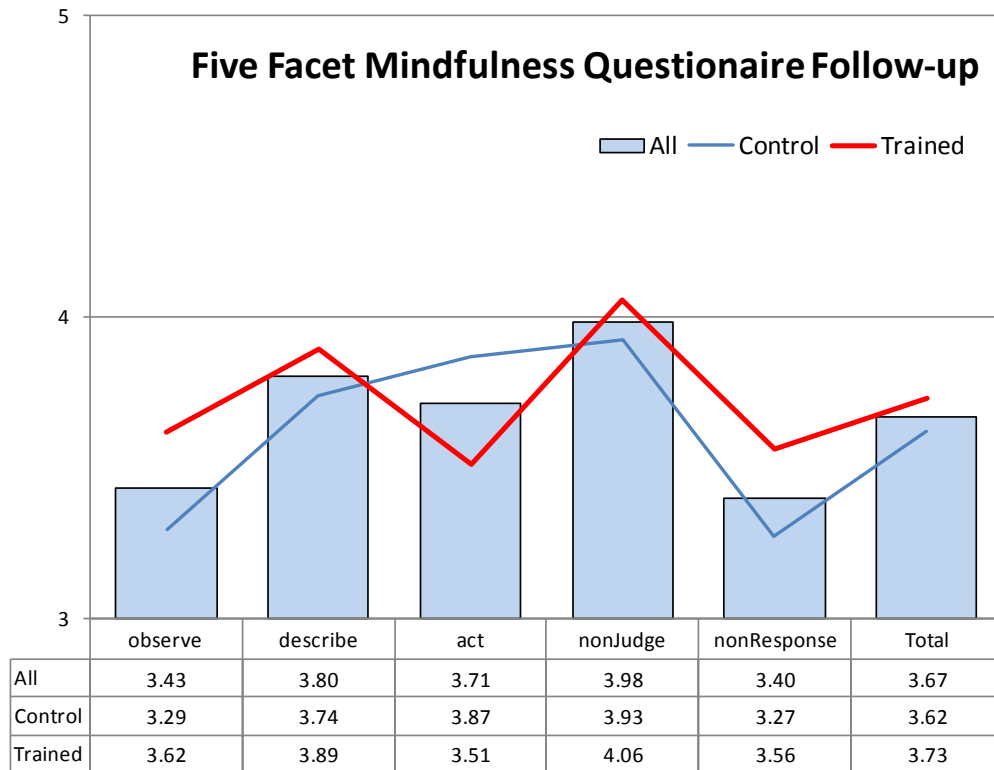
Before Training/ Coaching Baseline FFMQ Survey

Five Facet Mindfulness Questionaire Baseline

	observe	describe	act	nonJudge	nonResponse	Total
All	3.37	3.84	3.82	4.07	3.49	3.72
Control	3.32	3.94	4.04	4.10	3.58	3.80
Trained	3.43	3.72	3.52	4.03	3.37	3.61

When comparing the change over time between the control average and the trained group on the FFMQ subscale average scores, we found significant differences in their respective total scores, as well as differences on Describe and the NonReact subscales. On both the latter scales the control group's average score dropped and the trained group's score increased. This suggests, notwithstanding the small size and attrition problems, that there may be a modest positive impact from the mindfulness/ meditation instruction and MI training and coaching on several dimensions of mindfulness or basic awareness of staff.

After Training/ Coaching Follow-Up FFMQ Results

Five Facet Mindfulness Questionaire Follow-up

Legend: All — Control — Trained

	observe	describe	act	nonJudge	nonResponse	Total
All	3.43	3.80	3.71	3.98	3.40	3.67
Control	3.29	3.74	3.87	3.93	3.27	3.62
Trained	3.62	3.89	3.51	4.06	3.56	3.73

After Training/ Coaching, the FFMQ Survey Results Changed Significantly for the Two Groups

Five Facet Mindfulness Questionaire Change Following Coaching

Legend: All — Graphic blank — Control

	observe	describe	act	nonJudge	nonResponse	Total
Graphic blank	(1.06)	(0.96)	(0.90)	(0.91)	(0.91)	(0.95)
All	0.06	(0.04)	(0.10)	(0.09)	(0.09)	(0.05)
Control	(0.03)	(0.20)	(0.18)	(0.18)	(0.31)	(0.18)
Trained	0.18	0.18	(0.01)	0.03	0.19	0.11
T-test>95%	86%	99%	85%	86%	100%	99%
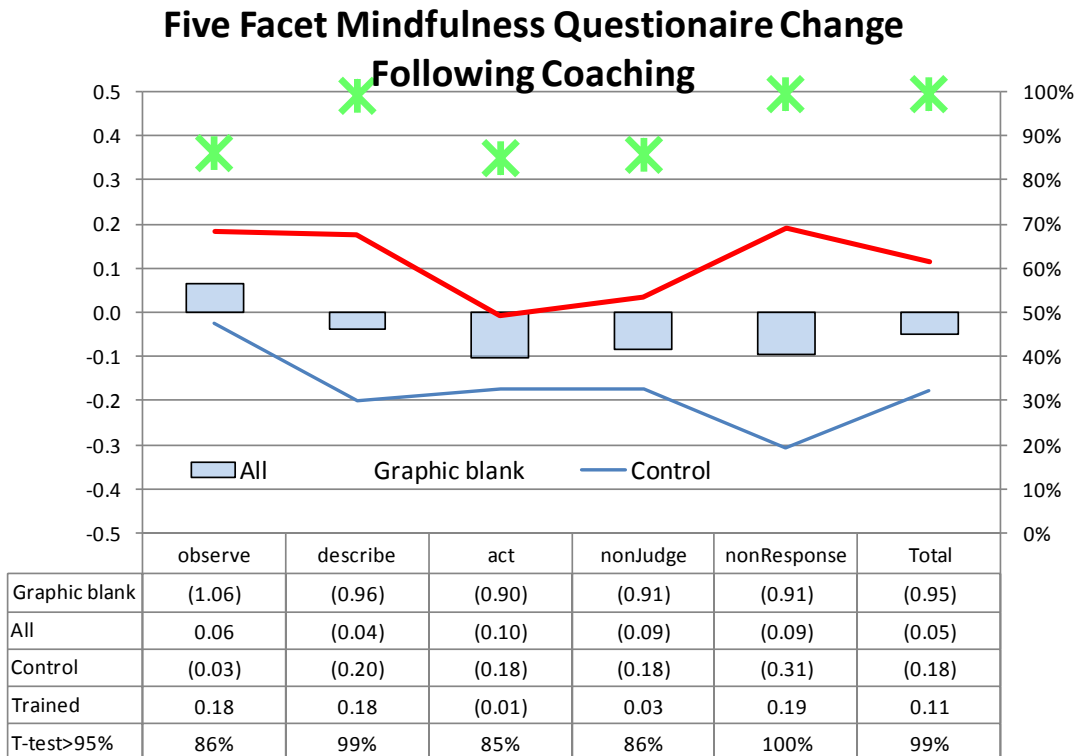
The third and last survey staff in the study completed was the Assessing Emotions Scale (AES) a survey tool designed to assess emotional intelligence. The AES has four subscales that tap into one's ability to: 1) perceive emotions; 2) manage emotions; 3) support and help others manage their emotions; and, 4) utilize and sublimate one's emotions constructively. At baseline participants in both groups completed the survey and there were no significant differences between the two groups.

Before Training/ Coaching Baseline AES Survey

Assessing Emotions Scale Baseline

	Perceptions	Manage Self	Manage Others	Utilize	Total
All	4.01	4.07	3.97	3.81	3.97
Control	4.00	4.08	4.04	3.78	3.97
Trained	4.04	4.05	3.88	3.84	3.95
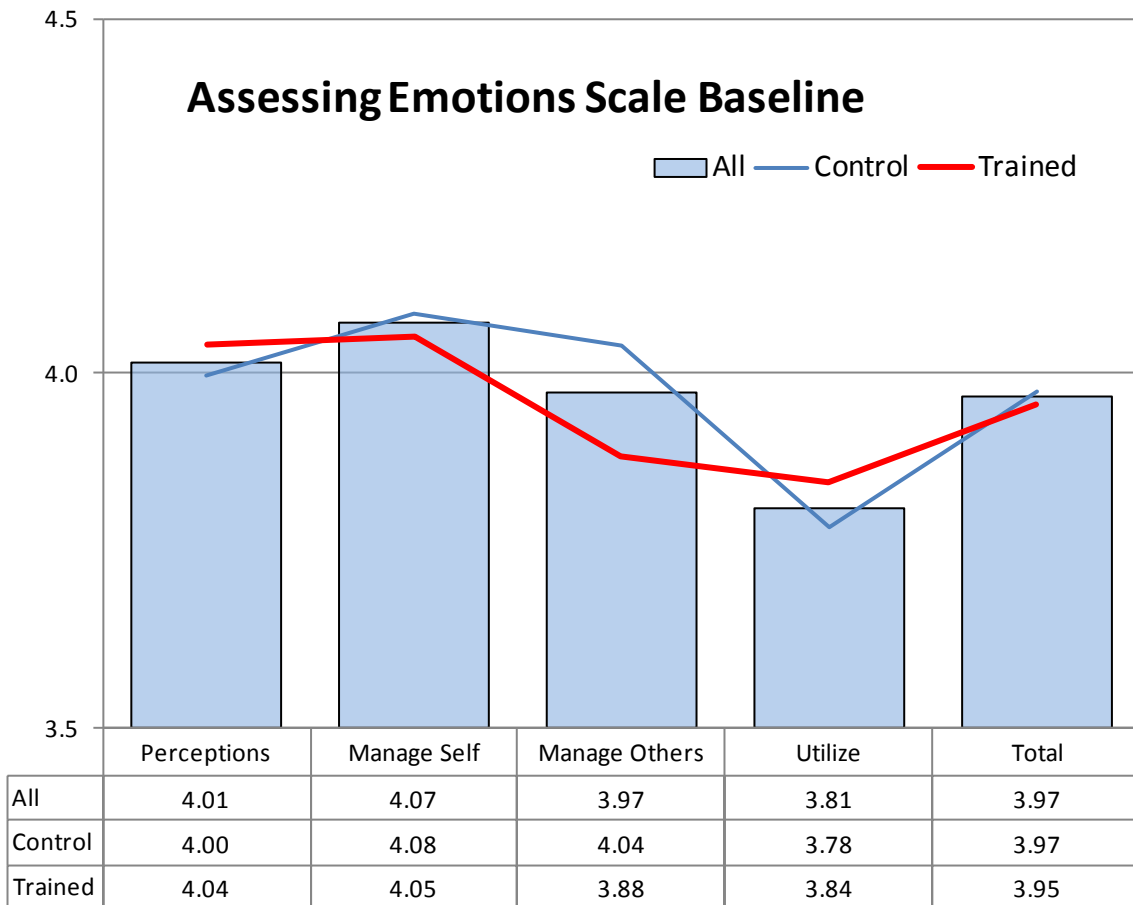
The results of the follow-up survey with the AES indicated that while the control group remained virtually unchanged in terms of the group's average scores, the trained group's scores increased uniformly across all subscales. However, t-tests determined that the difference in scores only reached a statistically significant level for the subscale Manage Others – the ability to support others in managing their emotions. This elevated subscale score in the trained group could be a function of either the meditation instruction or the MI training and coaching – both are potentially plausible explanations.

After Training/ Coaching Follow-Up AES Results

Assessing Emotions Scale Follow-up

Legend: All — Control — Trained

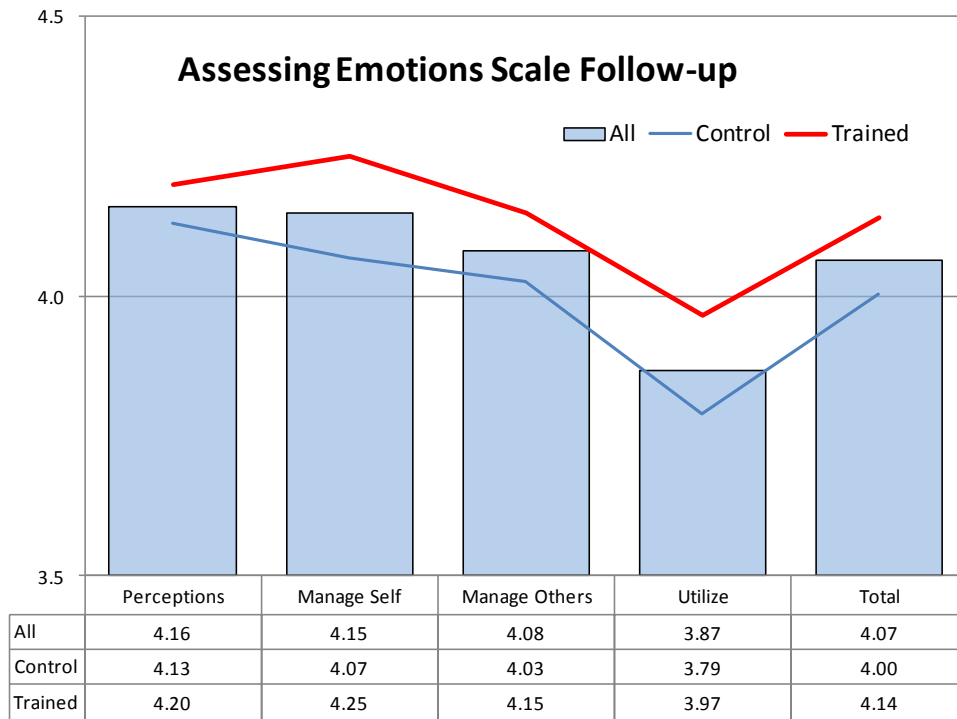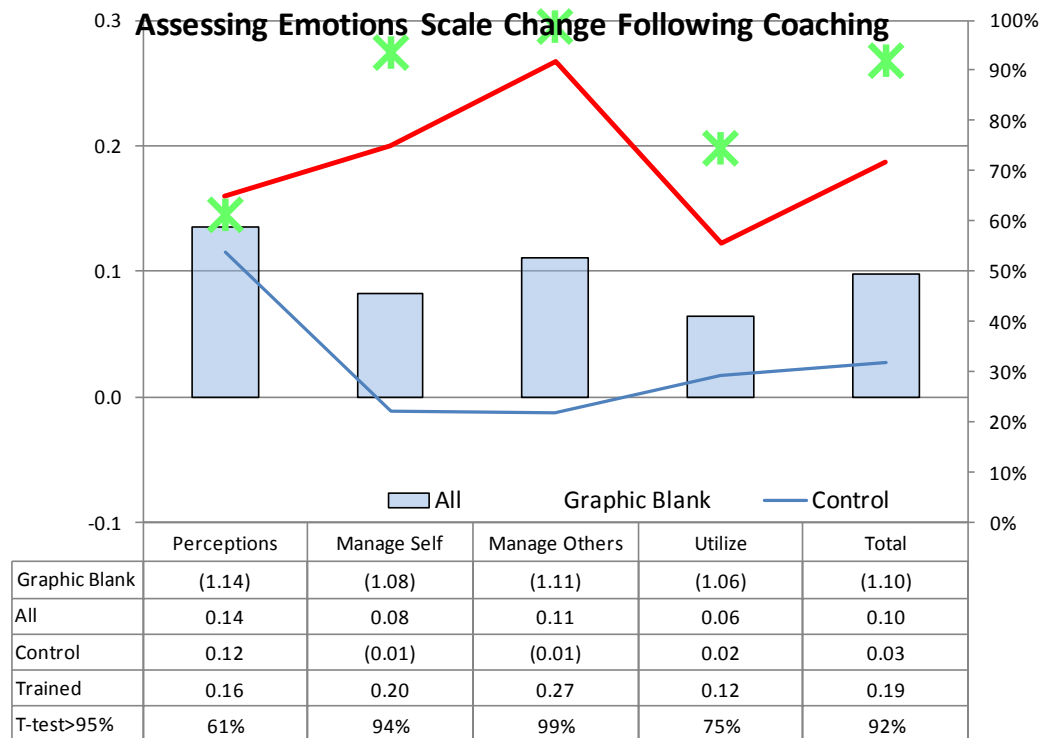|	Perceptions	Manage Self	Manage Others	Utilize	Total
All	4.16	4.15	4.08	3.87	4.07
Control	4.13	4.07	4.03	3.79	4.00
Trained	4.20	4.25	4.15	3.97	4.14

After Training/ Coaching, the AES Survey Results Changed Significantly for the Two Groups

Assessing Emotions Scale Change Following Coaching

Legend: All — Graphic Blank — Control

	Perceptions	Manage Self	Manage Others	Utilize	Total
Graphic Blank	(1.14)	(1.08)	(1.11)	(1.06)	(1.10)
All	0.14	0.08	0.11	0.06	0.10
Control	0.12	(0.01)	(0.01)	0.02	0.03
Trained	0.16	0.20	0.27	0.12	0.19
T-test>95%	61%	94%	99%	75%	92%

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To summarize our findings regarding the survey measures, using paired t-tests for significant differences, we noticed that the two respective groups differed significantly on several different survey subscales:

- Five Facet Mindfulness Questionnaire/ Total Score
- Five Facet Mindfulness Questionnaire/ Describing (Emotions)
- Five Facet Mindfulness Questionnaire/ NonReactance
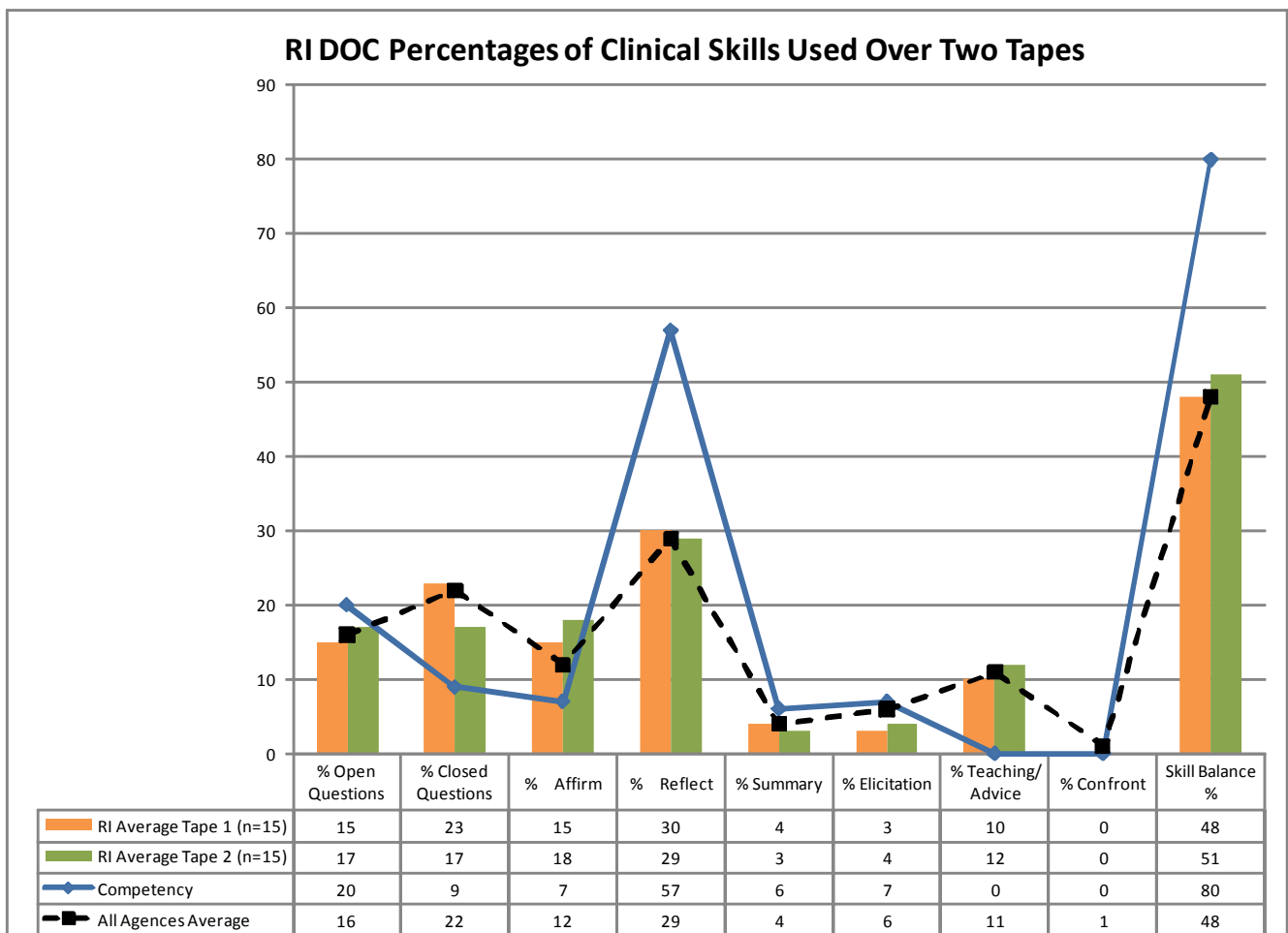- Assessing Emotions Scale/ Managing Others

Two other subscales, the LOCS Leadership and Control subscales were within .10 significance levels but they did not reach .05 (or 95% or above confidence).

Tests for Significant Differences Across the Gain Scores Between the Control and Trained Group

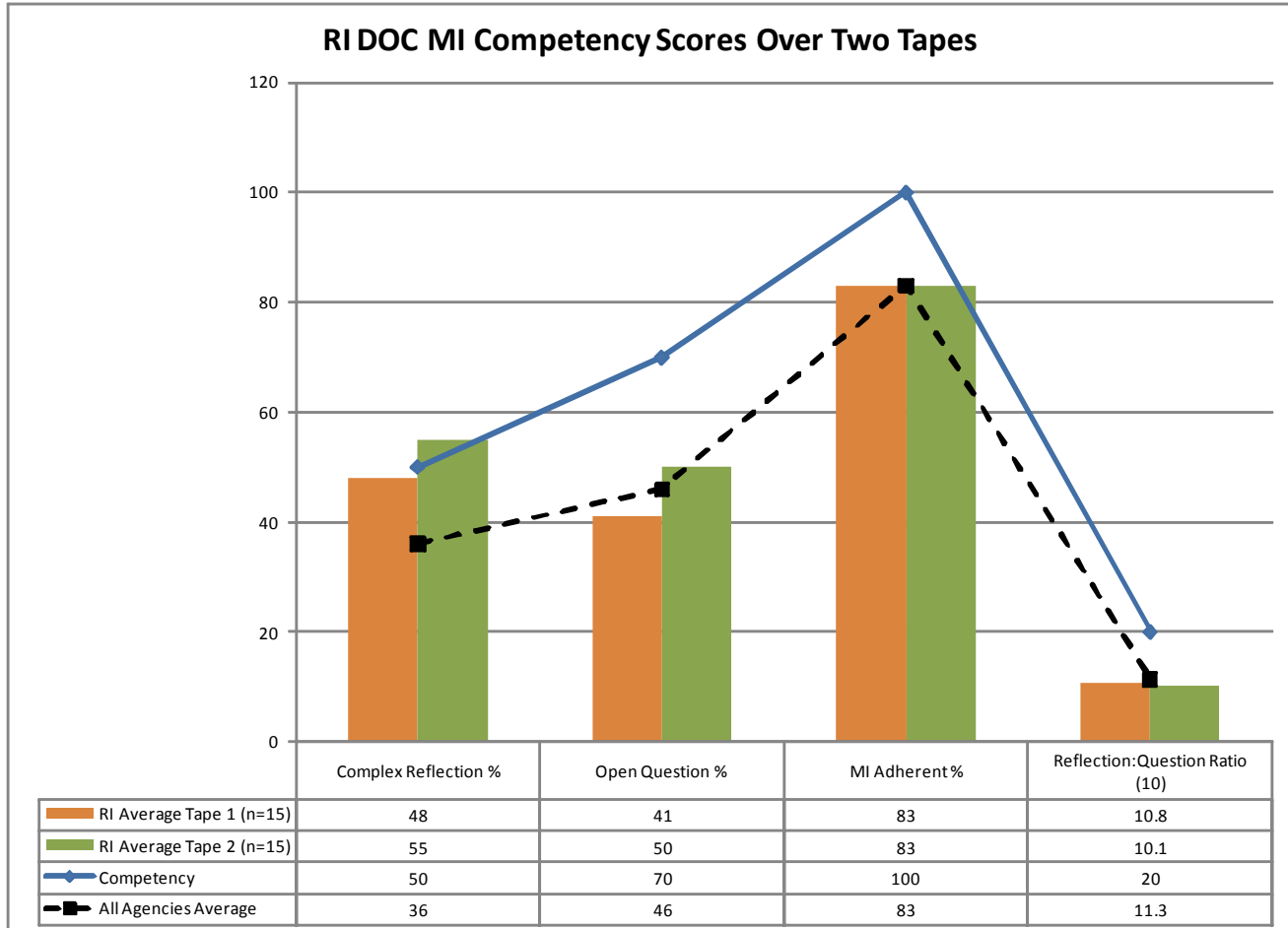| Probability that the change in Attitude Survey Scores for the Trained Group and Control Group are Different						
LOCS Leader	LOCS Motive	LOCS Communicate	LOCS Decision	LOCS Goals	LOCS Control	LOCS Average
91%	62%	75%	51%	60%	82%	67%
FIVE FACET obsrv	FIVE FACET decrib	FIVE FACET act	FIVE FACET nonjudge	FIVE FACET nonreact	FIVE FACET TTL	
86%	99%	85%	86%	100%	99%	
AES Perceptions	AES Manage Self	AES Manage Others	AES Utilize	AES Total		
61%	94%	99%	75%	92%		

Acquisition of MI Skills:

        Comparing MI skill profiles of assessed skill time one and time two, there is evidence of very modest but consistent improvement in the pilot staff's MI skills. During the year between T-1 and T-2, staff increased in overall proportions of desirable skills: Open Questions, Affirmations, Elicitations (of Change Talk) and Skill Balance and decreased in proportions of skills not consistent with MI: Closed Questions, Teaching, Confrontations. One skill category, reflections, remained the same between time one and time two and summaries (a subset of reflections) went down slightly over time. While this pattern clearly suggest movement in the right direction, it falls considerably short of bringing the group to scale in terms of competency in MI.

RI DOC Percentages of Clinical Skills Used Over Two Tapes

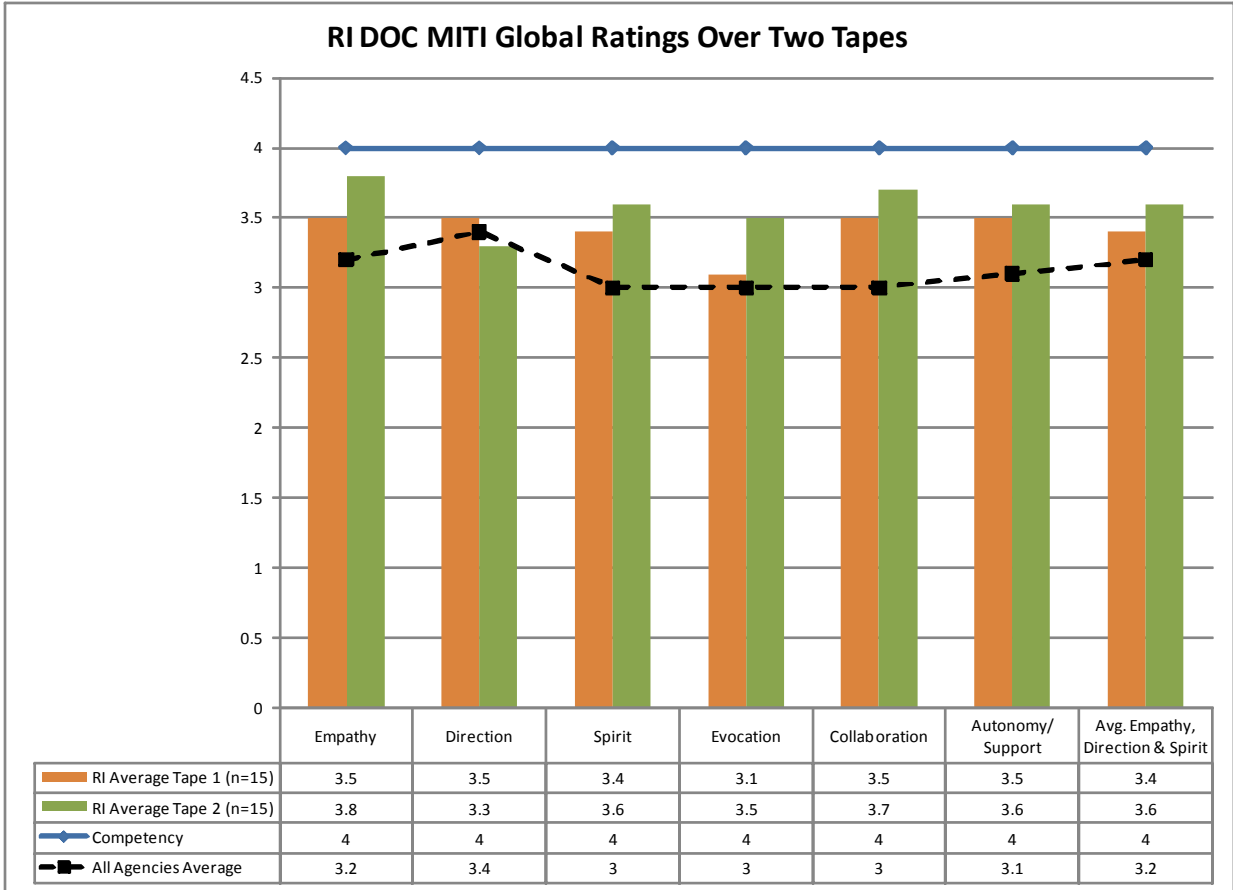|	% Open Questions	% Closed Questions	% Affirm	% Reflect	% Summary	% Elicitation	% Teaching/ Advice	% Confront	Skill Balance %
RI Average Tape 1 (n=15)	15	23	15	30	4	3	10	0	48
RI Average Tape 2 (n=15)	17	17	18	29	3	4	12	0	51
Competency	20	9	7	57	6	7	0	0	80
All Agences Average	16	22	12	29	4	6	11	1	48

RI DOC Percentages of Clinical Skills Used Over Two Tapes:

The lack of progress with use of Reflections is of some concern because Reflections play such a central role in MI. The ratio of Reflections to Questions is considered by many to be a core index for MI. On the Motivational Interviewing Therapeutic Scale (MITI-3) a ratio of 2:1 Reflections to Questions is the threshold for competency and on both occasions where the pilot group's skills were assessed on tapes, they averaged approximately (1.1 on T-1 and 1.0 on T-2) one Reflection for every Question.

RI DOC MI Competency Scores Over Two Tapes

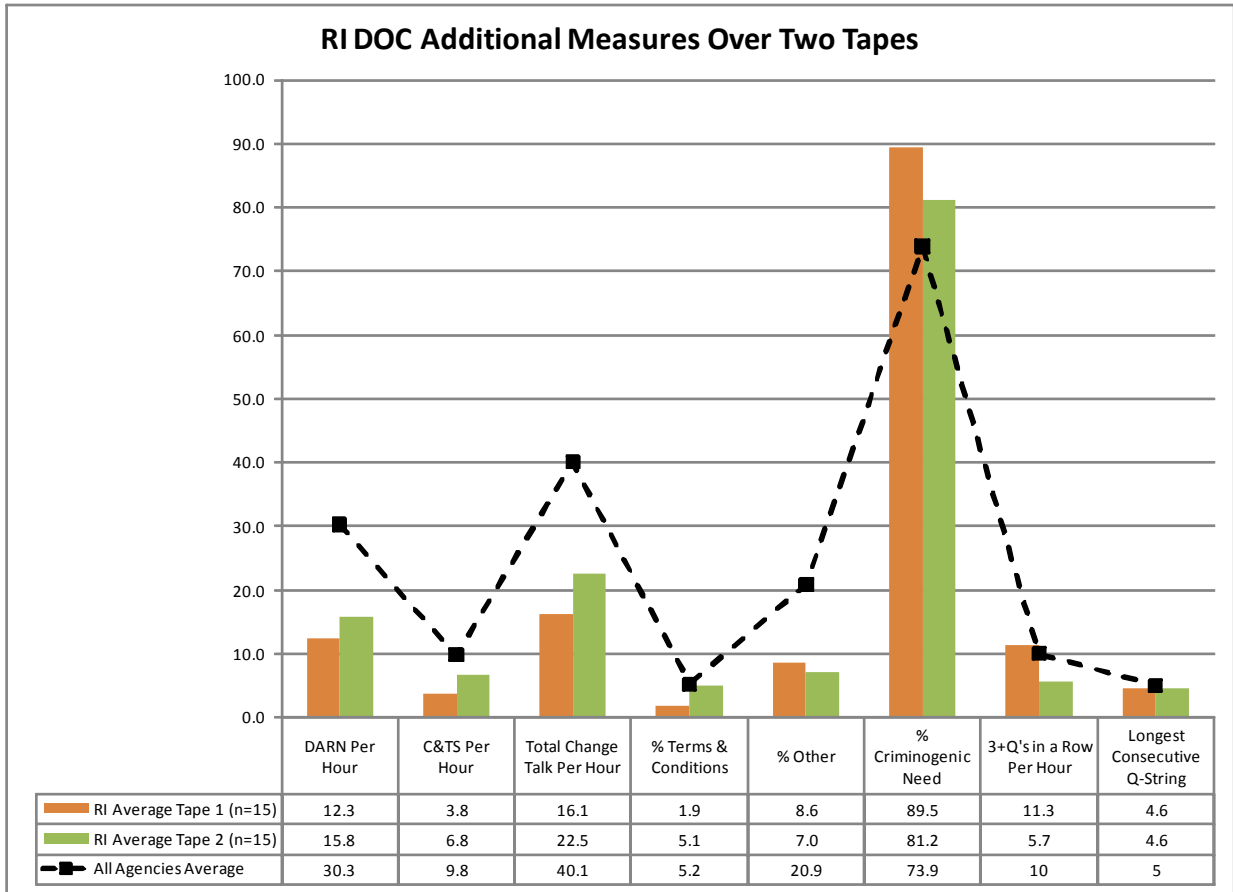|	Complex Reflection %	Open Question %	MI Adherent %	Reflection:Question Ratio (10)
RI Average Tape 1 (n=15)	48	41	83	10.8
RI Average Tape 2 (n=15)	55	50	83	10.1
Competency	50	70	100	20
All Agencies Average	36	46	83	11.3

Staff in this pilot did improve consistently however, across all global assessments of their demeanor and in particular on Evocation. The Evocation Global measure denotes a person's interest in drawing solutions from the other person or client. Increases in this aspect of staff orientation is likely to be associated with increases in client Change Talk or self-motivating statements. Change Talk has been established as one of the mechanisms by which MI produces improved outcomes – by increasing the rate that clients express Change Talk.

RI DOC MITI Global Ratings Over Two Tapes

	Empathy	Direction	Spirit	Evocation	Collaboration	Autonomy/ Support	Avg. Empathy, Direction & Spirit
RI Average Tape 1 (n=15)	3.5	3.5	3.4	3.1	3.5	3.5	3.4
RI Average Tape 2 (n=15)	3.8	3.3	3.6	3.5	3.7	3.6	3.6
Competency	4	4	4	4	4	4	4
All Agencies Average	3.2	3.4	3	3	3	3.1	3.2

The data, as depicted below, suggest that staff's ability to elicit Change Talk did indeed improve over time. The rate of Total Change Talk went up from an average of 16 client utterance per hour of Change Talk at T-1 to 27.1 at T-2. Other promising indicators of improvement were a decrease on the emphasis of Terms & Conditions as a topic, and a decrease in the rate that staff used three or more questions in a row – a practice known to increase defensiveness.

Though the pilot staffs' skill improvements were generally small, they were for the most part consistent across all skill categories. Furthermore, the most substantive gains were in areas that appear to be directly related to outcome: the ability to elicit Change Talk; and, global demeanor as relates to engagement.

RI DOC Additional Measures Over Two Tapes

	DARN Per Hour	C&TS Per Hour	Total Change Talk Per Hour	% Terms & Conditions	% Other	% Criminogenic Need	3+Q's in a Row Per Hour	Longest Consecutive Q-String
RI Average Tape 1 (n=15)	12.3	3.8	16.1	1.9	8.6	89.5	11.3	4.6
RI Average Tape 2 (n=15)	15.8	6.8	22.5	5.1	7.0	81.2	5.7	4.6
All Agencies Average	30.3	9.8	40.1	5.2	20.9	73.9	10	5

Relationship Between Attitudinal Surveys and MI Skill Learning:

How do staff attitudes and skills co-vary? For corrections systems interested in ramping-up staff skills in EBPs as subtle and complex as MI and CBT coaching, this may be a very important question to explore. Although the sample size is inadequate the data from this current preliminary study suggest that certain identifiable relationships may exist and be worth further examination.

Correlations between survey and MI skill variables were tested. We were interested in the attitudinal survey subscale measures that were determined through earlier t-tests to have changed significantly over time for the trained group (FFMQ Describe and Non-Reactance; AES Manage Others, and, LOCS Leadership). Correlations between the latter four attitudinal variables (we included one LOCS subscale measure, Leadership, because it was almost significant and we wanted to see

what, if any, potential relationship the LOCS variables have with staff skills) and three relatively simple but robust measures related to MI skills (i.e., longest string of consecutive questions, MITI Global avg., Officer Skill Balance) were established using Pearson's Correlations tests.

It is noteworthy that few of the above relationships were found to be statistically significant, most (see the shaded cells below) were in the anticipate direction. Those that weren't in the anticipated direction pose a puzzle, particularly the relationships formed by the three FFMQ/ Describe subscale. What is behind one subscale in the FFMQ (Non Reactance) having favorable relationships with MI skills and another subscale in the same tool (Describe) have unfavorable ones? Moreover, within the AES/ Manage Others Change there are both potentially favorable (Longest string of questions and Officer skill balance) and unfavorable relationships (MITI Global Avg). Certainly a lot of this noise resulting from a tiny sample but by the same token, if relationships of similar strength were found with a larger sample, they would more than likely achieve statistical significance.

Survey & MI Skill Subscale Gain Score Correlations

MI Skill Measures	Survey Measures	FFMQ-Describe Change	FFMQ-Nonreact Change	AES-Manage Others Change	LOCS-Leader Change
Officer Longest Question String Change (T-1/T-2)	Pearson Corr	.351	-.205	-.120	-.598*
	Sig. (1-tailed)	.109	.241	.342	.012
	N	14	14	14	14
MITI Global Avg Change (T-1/T-2)	Pearson Corr	-.281	.212	-.313	.471*
	Sig. (1-tailed)	.166	.233	.138	.045
	N	14	14	14	14
Officer Skill Balance Change (T-1/T-2)	Pearson Corr	-.057	.317	.269	.489*
	Sig. (1-tailed)	.424	.135	.176	.038
	N	14	14	14	14

The relationships between FFMQ and MI skills makes intuitive sense. The more ability one has to detach and avoid reacting to things the client is sharing and presenting, sometimes referred to as equipoise, is extolled in the MI literature. It does not seem a very far stretch that practice in meditation could increase this capacity and as a result of this increased capacity, the process of acquiring MI skills is enhanced. More research is warranted therefore.