

# **Evaluating Motivational Interviewing Training**

**Prepared for:**

**The New Mexico Department of Corrections Education Bureau**

**Prepared by:**

**Dale Willits, M.A.  
Danielle Albright, M.A.  
Lisa Broidy, Ph.D.  
Christopher Lyons, Ph.D.**

**New Mexico Statistical Analysis Center  
Institute for Social Research  
University of New Mexico  
Albuquerque, New Mexico**

**Lisa M. Broidy, Director**

**July 2009**

**Points of view or opinions in this document are those of the authors and study participants and do not represent the official positions or policies of the New Mexico Department of Corrections.**

## I. INTRODUCTION

From March 4<sup>th</sup> to May 29<sup>th</sup>, the New Mexico Department of Corrections (NMDOC) Education Bureau conducted seven Motivational Interviewing (MI) training sessions for NMDOC staff and NMDOC partners. Three of the training sessions were conducted in Albuquerque and the rest were conducted in Grants, Roswell, Las Cruces, and Santa Fe. Each of these training sessions was three days long and was conducted by Motivational Interviewing specialists from the University of New Mexico's Center on Alcoholism, Substance Abuse, and Addictions. This brief report utilizes survey data to evaluate the effectiveness of MI training sessions conducted by the NMDOC Education Bureau.

At the beginning of each of the training sessions, participants were asked to complete a Motivational Interviewing survey. This survey included questions that gathered basic demographic information, knowledge of motivational interviewing, perceptions of the effectiveness of motivational interviewing, the likelihood of utilizing MI strategies, and perceptions of correctional clients (inmates, parolees, and probationers). At the end of the three-day training session, participants were asked to complete a second (identical) copy of the Motivational Interviewing survey. By having training participants fill out this survey prior to receiving training and at the end of the training session, we are able to assess whether or not the participants' knowledge of motivational interviewing, perceptions of the effectiveness of motivational interviewing, likelihood of utilizing MI strategies, and perceptions of correctional clients (inmates, parolees, and probationers) changed over the course of the MI training session.

This report serves two primary functions. First, using the data collected in the pre- and post-training MI surveys, we provide a descriptive analysis of the survey responses. Specifically, we provide numeric and graphical information on the distribution of responses to the MI survey questions. This descriptive analysis allows us to make general statements about participants' knowledge and perceptions of motivational interviewing and perceptions of correctional clients, as well as more detailed statements about how these perceptions vary across gender, level of education, level of experience, and job type of respondents.

Second, we evaluate the effectiveness of the MI training sessions. The training sessions were intended to increase participants' knowledge about MI and increase participants' likelihood of utilizing MI strategies in their day-to-day work activities. This analysis is conducted by comparing respondents' pre- and post-training responses on relevant survey items. As each training session was only three days long, we can be reasonably certain that any significant changes in the pre- and post- survey responses are the result of the MI training sessions.

The questions included in the MI survey are presented in table 1. The column labeled "Question" presents the question, as it was written in the survey, while the "Coding" column presents the available responses to each question (which respondents were asked to circle). The "Variable" column represents a shorthand identifier for each survey item, allowing us to quickly reference responses to different questions. These variable names

are used throughout the remainder of the report to refer to responses to specific survey questions.

**Table 1. Motivational Interviewing Survey Items**

Variable	Question	Coding
Read Article	Did you read the training article?	0 = no, 1 = yes
Read MI Book	Did you read the MI book	0 = no, 1 = yes
Ideas	I understand the basic ideas and principles of motivational interviewing.	1 = Strongly Disagree, 2= Disagree, 3 = Undecided, 4 = Agree, 5 = Strongly Agree
Proficient	I feel proficient and able to use motivational interviewing in my practice.	1 = Strongly Disagree, 2= Disagree, 3 = Undecided, 4 = Agree, 5 = Strongly Agree
Lack of Motivation	Lack of motivation for change is a significant frustration for my clients.	1 = Strongly Agree, 2= Agree, 3 = Undecided, 4 = Disagree, 5 = Strongly Disagree
Frustration	My clients' lack of motivation for change is a significant frustration in my work.	1 = Strongly Disagree, 2= Disagree, 3 = Undecided, 4 = Agree, 5 = Strongly Agree
Motivation for Change	I believe that a client's own level of motivation for change is important.	1 = Strongly Disagree, 2= Disagree, 3 = Undecided, 4 = Agree, 5 = Strongly Agree
Increase Motivation	If a client is not initially motivated, I do not think that I will be able to increase his or her motivation.	1 = Strongly Agree, 2= Agree, 3 = Undecided, 4 = Disagree, 5 = Strongly Disagree
Administrative Support	There is limited administrative support for integrating MI into my work.	1 = Strongly Agree, 2= Agree, 3 = Undecided, 4 = Disagree, 5 = Strongly Disagree
Applicable	Motivational Interviewing is applicable to my work.	1 = Strongly Disagree, 2= Disagree, 3 = Undecided, 4 = Agree, 5 = Strongly Agree
Listen	I am a skillful good listener in working with clients.	1 = Strongly Disagree, 2= Disagree, 3 = Undecided, 4 = Agree, 5 = Strongly Agree
Use MI	I will use Motivational Interviewing in my work.	1 = Strongly Disagree, 2= Disagree, 3 = Undecided, 4 = Agree, 5 = Strongly Agree
Internal Motivations	I think that the most effective way to motivate clients or patients to change is by drawing on their own internal motivations.	1 = Strongly Disagree, 2= Disagree, 3 = Undecided, 4 = Agree, 5 = Strongly Agree
Coerce	Some clients need to be coerced or pressured to change.	1 = Strongly Agree, 2= Agree, 3 = Undecided, 4 = Disagree, 5 = Strongly Disagree
Change	Some clients will never change regardless of how I interact with them.	1 = Strongly Agree, 2= Agree, 3 = Undecided, 4 = Disagree, 5 = Strongly Disagree

In addition to the information described in table 1, we also recorded the following data for each survey respondent: gender, years of education, years of work experience in the field of corrections, job type, and the location and date of the training session. Gender is recorded as a binary dummy variable (0 = female, 1 = male). Years of education and years of corrections work experience were recorded as numeric variables (rounded to the

nearest year). Job type is recorded as a categorical variable (1 = Classification Officer, 2 = Education, 3 = Probation & Parole, 4 = Other).

In total, 435 individuals participated in the MI training sessions. Unfortunately, we are unable to account for all 435 pre- and post-training questionnaires. A number of individuals completed the pre-training survey and not the post-training survey (and vice versa). There are several reasons why this might have occurred. If a respondent missed either the first or last day of training, then he/she would have been unable to complete both questionnaires. It is also possible that some respondents either forgot to turn in their surveys or opted to not fill them out. Overall, 388 individuals completed both the pre- and post-training questionnaires, with the pre- and/or post-training questionnaire missing from 47 respondents.

Respondents were each assigned a unique identification number and were not required to identify themselves with personal information on the survey. We used these identification numbers to merge respondents' pre- and post-training responses into a single data file. After doing this, we performed a thorough analysis to assess data quality. This analysis revealed certain inconsistencies in participant response patterns that cannot be accounted for by the training experience. Specifically, some respondents reported different gender, experience, and education values in the pre- and post-training surveys. For example, some respondents reported that they were male in the pre-training survey and that they were female in the post-training survey. After discovering this issue, we compared pre- and post-training responses on sex, experience, and education for the 388 individuals that completed both pre- and post-training surveys.

**Table 2. Proportion of Respondents with Matching Responses on Key Variables**

Variable	Total N	Proportion Matching
Sex	365	.9890
Experience	344	.7674
Education	367	.8665

This analysis indicates that 4 of the 365 (or 1.1%) respondents answering the gender item reported a different gender in the pre- and post-training surveys, 80 of the 344 (or 23.26%) respondents that answered the experience item reported a difference in years of experience, and 49 of the 367 (13.35%) respondents answering the education item reported a difference in years of education.

While it is possible that these inconsistencies are the result of malicious or haphazard survey respondents, it is more plausible that the discrepancies result from a problem with the administration of the survey. It is very likely that a number of respondents filled out surveys that were intended for other respondents. Somehow, during the administration of the pre- and/or post-training surveys, these respondents either mixed up their paper work or were given another individual's survey form.

While this data inconsistency problem is worth mentioning, we caution against overstating its importance. The listwise sample for individuals completing both a pre- and post-training survey with matching values for location, sex, experience, and education for the pre- and post-training surveys is 284. Moreover, it may be the case that the some of the experience and education mismatches are the result of memory or recollection problems. If the education values are collapsed into categories (of 0 years, 1-5 years, and 5+ years), then 93.7% of the respondents report the same education levels on the pre- and post-training surveys. Similarly, if the experience values are collapsed into categories (of 0-2 years, 3-5 years, 6-10 years, and 11+ years), then 92.4% of respondents report the same experience levels on the pre- and post-training surveys. In other words, while a substantial number of respondents report different values for the experience and education items in the pre- and post-training surveys, they generally report values that are very close. Clearly, this argument is not valid for the differences in reported gender across the pre- and post-survey. However, the gender inconsistencies are perhaps the least worrisome of the inconsistencies, given the small percentage of respondents that reported a different gender in the pre- and post-surveys.

For the remainder of the report, we adopt the following strategy for dealing with respondents with inconsistent responses to gender, experience, and education. We include all respondents when presenting information regarding pre- and post-training responses. We are not comparing responses across time in these analyses, and thus, the response inconsistencies are inconsequential. However, when we present analysis results comparing pre- and post-training responses, we omit all individuals who do not match on gender, education, or experience categories (see above for more information on how education and experience are recoded). We also conducted all of the pre-post comparison analyses excluding all non-matching cases.

## II. ANALYSIS

Tables 3 and 4 present the descriptive statistics for the pre- and post-training survey responses.

**Table 3. Descriptive statistics for pre-training responses**

Variable	N	Mean	Std. Dev	Median
Readart	404	0.67	0.471	1
ReadMI	404	0.04	0.201	0
Ideas	416	3.68	0.730	4
Proficient	416	3.25	0.886	3
Internal Motivations	416	3.87	0.748	4
Lack of Motivation	416	3.73	1.112	4
Frustration	416	3.37	1.060	4
Motivation for Change	414	4.22	0.815	4
Increase Motivation	414	3.69	0.909	4
Applicable	413	3.92	0.846	4
Listen	410	4.05	0.624	4
Administrative Support	415	3.16	1.014	3
Use MI	415	3.71	0.848	4
Coerce	414	2.95	1.071	3
Change	416	2.69	1.157	2

**Table 4. Descriptive statistics for post-training responses**

Variable	N	Mean	Std. Dev	Median
Readart	380	0.76	0.429	1
ReadMI	380	0.07	0.253	0
Ideas	407	4.21	0.626	4
Proficient	405	3.66	0.746	4
Internal Motivations	407	4.13	0.721	4
Lack of Motivation	405	3.62	1.117	4
Frustration	404	3.44	1.075	4
Motivation for Change	404	4.27	0.742	4
Increase Motivation	406	3.67	0.940	4
Applicable	402	3.94	0.859	4
Listen	407	4.06	0.629	4
Administrative Support	403	3.15	1.127	3
Use MI	406	3.88	0.821	4
Coerce	405	3.04	1.101	3
Change	407	2.56	1.220	2

The mean values for Readart and ReadMI are the percentage of respondents that read the article or book. Overall, 67% of respondents read the MI article before attending the training, while only 4% read the MI book. By the end of the training, 76% of respondents read the MI article, while only 7% had read the MI book. In both cases, the percentage of respondents reporting that they read the article and book during the post-training survey is substantially higher than the percentage of respondents reporting that they read the article and book during the pre-training survey. A McNemar Chi-Squared test indicates that the number of respondents reporting that they read the article the end of training was significantly higher than the number that read articles before the training

began. There was, however, no significant change in the number of people that stated that they had read the book at the beginning and end of training.

**Table 5. McNemer Tests for Change in ReadArt and ReadMI**

	ReadArt (Pre and Post)	ReadMI (Pre and Post)
N	275	275
Chi-Square <sup>a</sup>	16,568	-
Asymptotic Significance	0.000	-
Exact Significance	-	0.146 <sup>b</sup>

a. Continuity Corrected, b. Binomial distribution used

For the remaining survey items, we display histograms using relative frequencies that present the distribution of pre- and post-training responses. The histograms provide a more intuitive method of understanding survey responses than an in-depth discussion of descriptive statistics. While both the pre- and post-responses for each survey item are included in each graph, it should be noted that the pre- and post-percentage bars are not directly comparable. This is because the pre-training figure includes all individuals that answered the item at the beginning of the training session, while the post-training percentages include all individuals that answered the item at the end of the training session. As described above, these populations do not perfectly overlap.

In order to directly compare the pre- and post-training responses, we also include a statistical analysis to determine if the pre- and post-training responses are significantly different, using only those cases with consistent data for both the pre- and post-training periods. The pre- and post-responses for each variable are significantly correlated (using Spearman’s correlation coefficient) at the 0.05 level. Though these significant correlations suggest that a respondent’s pre-training responses are related to their post-training responses, we also note a great deal of variance between these measures. In other words, for most respondents, responses are similar from one period to the next, but, for some, responses vary across the pre- and post-training periods in ways that may be important.

In order to investigate these differences in more detail, we examine the change in pre- and post-responses for each survey item. Here we focus only on those 284 respondents for who completed pre- and post-training surveys and who have matching responses on gender, experience, and education across these 2 surveys. We use the Wilcoxon Sign Rank test to compare respondents’ pre- and post-training responses to determine if a statistically significant number of people reported a change in their pre- and post-levels of agreement with each survey item.<sup>1</sup> The histograms and results of these comparative analyses are presented and discussed in detail below.

We also disaggregated each survey item by respondent gender, occupation, education, and experience and repeated the analyses described above. This allows us to evaluate the

<sup>1</sup> While the pre-post difference scores are fairly symmetric and, on visual inspection, appear to be normally distributed, the differences for each survey item fail both the Kolmogorov-Smirnov and Shapiro-Wilk numeric tests for normality. Given this apparent departure from normality, the Wilcoxon Sign Rank test is preferred to the standard paired t-test procedure

degree to which the distribution of survey responses varies by gender, occupation, education, and experience. The results for these disaggregated analyses are presented in the Appendix and all statistically significant differences are reported in the text below.

*Idea*

**Figure 1. Pre- and Post-Training Responses to Survey Item “Idea”**

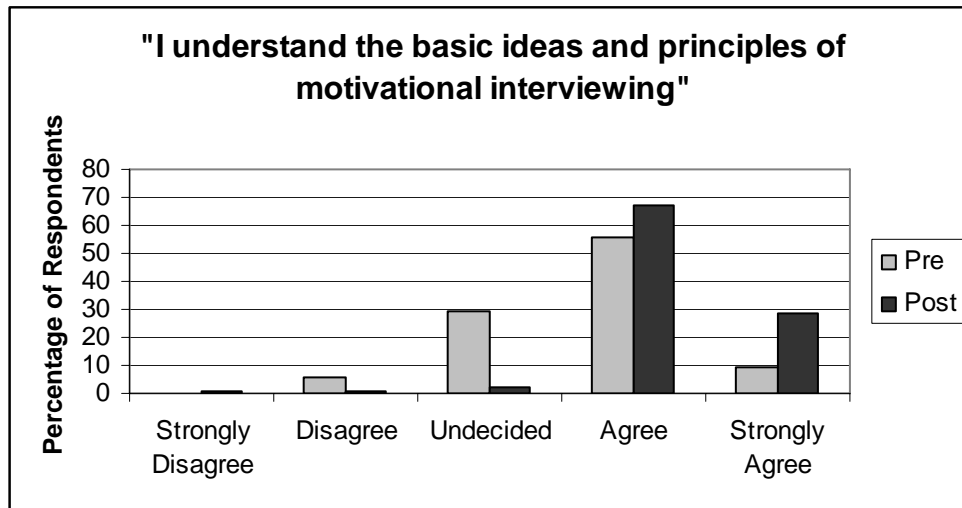


Figure 1 indicates that most participants stated that they understand the basic principles of motivational interviewing. Even in the pre-training questionnaire, very few respondents disagreed or strongly disagreed with the statement that they understood the basic ideas and principles of motivational interviewing. However, before training, several respondents indicated that they were undecided to this item, suggesting that they were not sure if they had a workable understanding of MI. Very few respondents selected undecided during the post-training session, while substantially more respondents selected agree and strongly agree. The Wilcoxon Sign Rank test (presented in table 6) confirms this finding, suggesting that significantly more respondents answered that they understood the basic ideas and principles during the post-training questionnaire than during the pre-training questionnaire. There were no significant differences across gender, occupation, education, or experience levels.

**Table 6. Wilcoxon Sign Rank Tests for Change in Responses to Idea**

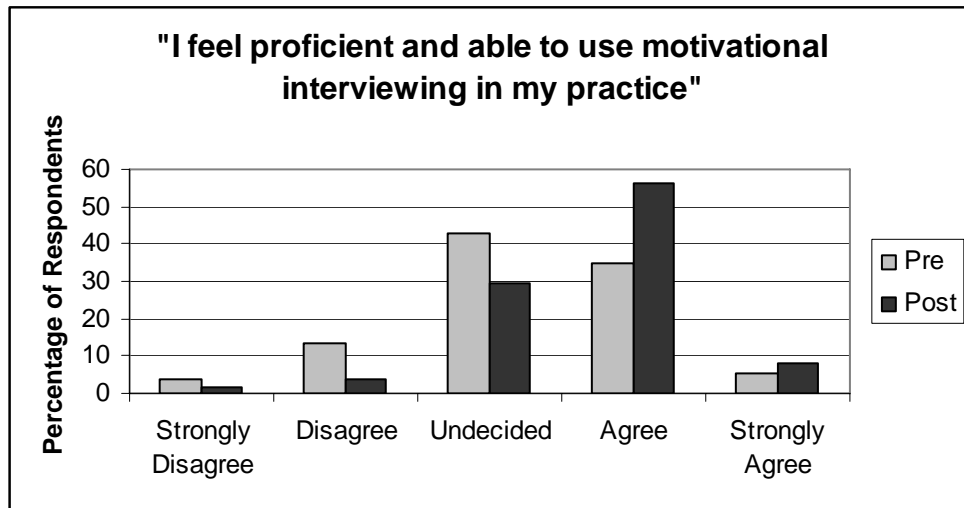
Variable	N	Z	Rank Basis
Ideas	284	-8.543**	+112

\* significant at the 0.05 level, \*\* significant at 0.01 level



*Proficient*

**Figure 2. Pre- and Post-Training Responses to Survey Item “Proficient”**



Prior to training, a sizable proportion of respondents stated that they either disagreed or were undecided as to whether or not they felt proficient and able to use MI in their practice. Following the training, the majority of respondents felt that they could be proficient users of MI in their practice. The Wilcoxon Sign Rank test confirms this result, suggesting that significantly more people answered that they felt proficient and able to use MI following than training than before the training. There were no significant differences across gender, occupation, education, or experience levels.

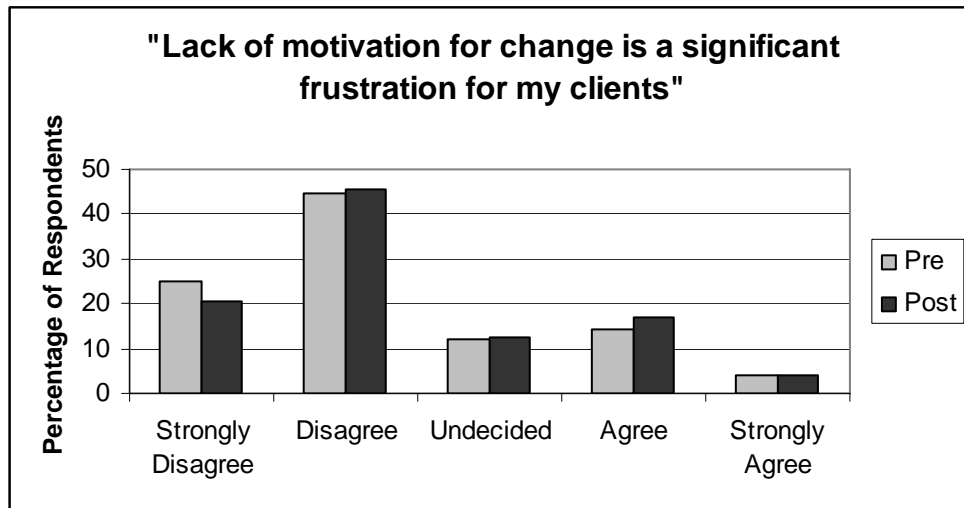
**Table 7. Wilcoxon Sign Rank Tests for Change in Responses to Proficient**

Variable	N	Z	Rank Basis
Proficient	282	-6.330**	+84

\* significant at the 0.05 level, \*\* significant at 0.01 level

*Lack of Motivation*

**Figure 3. Pre- and Post-Training Responses to Survey Item “Lack of Motivation”**



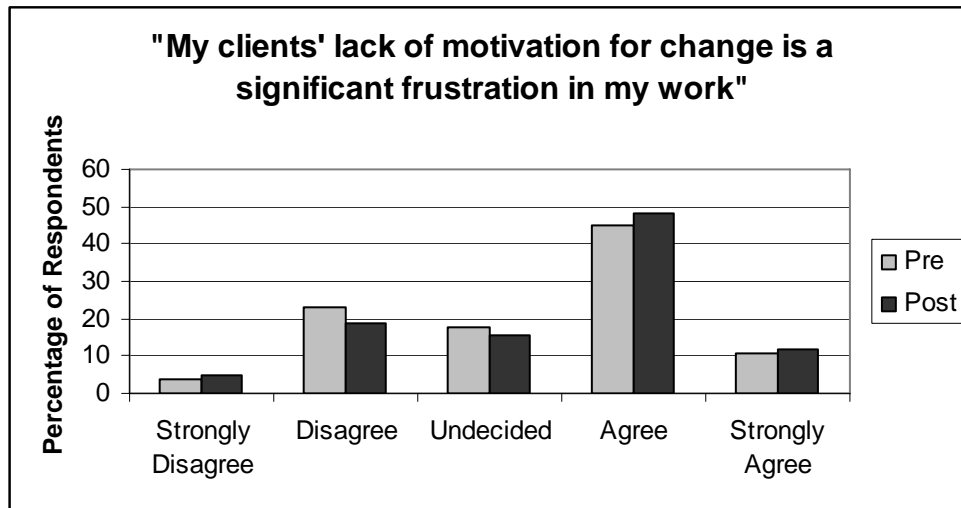
Prior to training, the majority of respondents disagreed or strongly disagreed with the statement that a lack of motivation for change is a significant frustration for my clients. This suggests that respondents believe that their clients, in general, are either motivated or are not concerned with their lack of motivation. The post-training responses appear to follow a similar pattern, suggesting that training did little to influence respondents’ opinions on this survey item. The Wilcoxon Sign Rank test confirmed this result, revealing no statistically significant differences in the pre- and post-training responses to this survey item.

**Table 8. Wilcoxon Sign Rank Tests for Change in Responses to Lack of Motivation**

Variable	N	Z	Rank Basis
Lack of Motivation	283	-1.363	-9

\* significant at the 0.05 level, \*\* significant at 0.01 level

**Figure 4. Pre- and Post-Training Responses to Survey Item “Frustration”**



Prior to training, the majority of respondents agreed or strongly agreed with the statement that their clients’ lack of motivation for change is a significant frustration in their work. After training, the proportion of respondents that agreed or strongly agreed with this statement increased slightly, although the Wilcoxon Sign Rank test on the subset of matched cases suggests that this shift was not statistically significant.

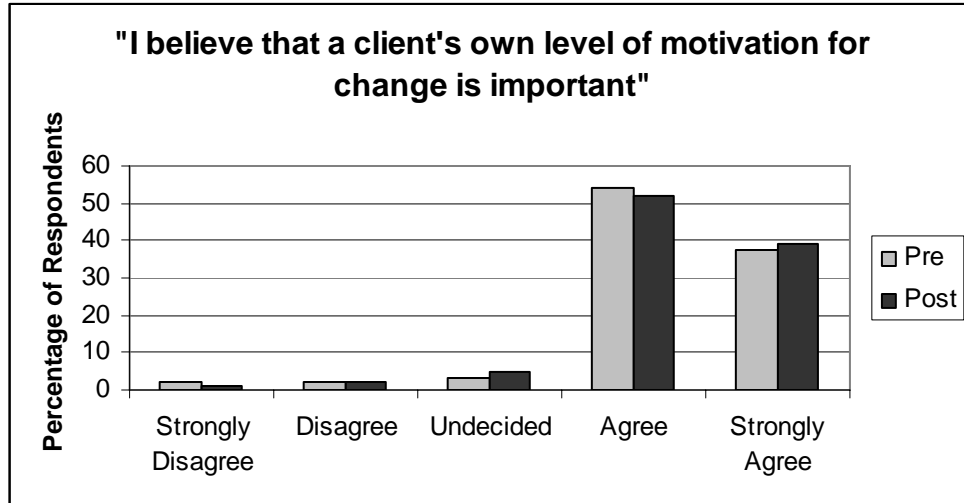
**Table 9. Wilcoxon Sign Rank Tests for Change in Responses to Frustration**

Variable	N	Z	Rank Basis
Frustration	283	-0.338	-11

\* significant at the 0.05 level, \*\* significant at 0.01 level

*Motivation for Change*

**Figure 5. Pre- and Post-Training Responses to Survey Item “Motivation for Change”**



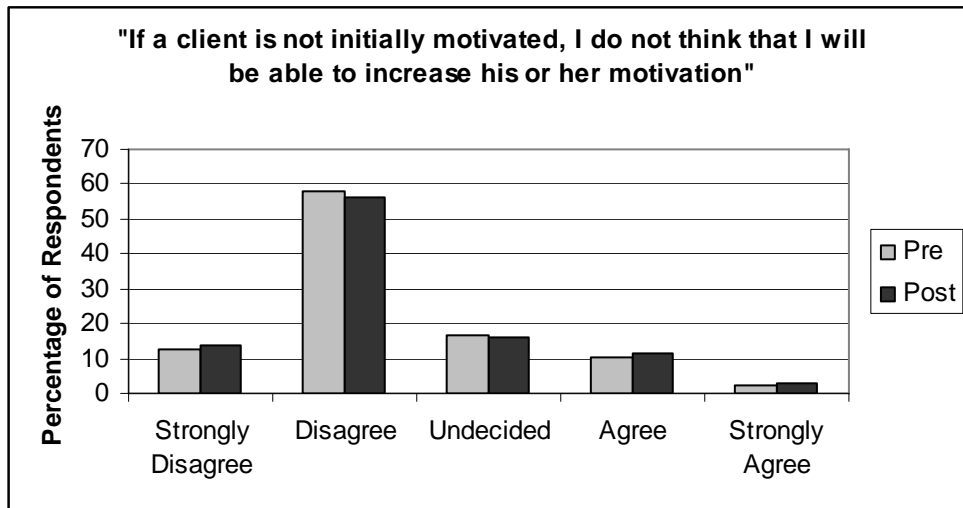
Prior to training, the majority of respondents agreed or strongly agreed with the statement that a client’s own level of motivation for change is important. There was very little change in the distribution of responses after training was completed. The Wilcoxon Sign Rank test revealed no statistically significant differences in the pre- and post-training responses to this survey item.

**Table 10. Wilcoxon Sign Rank Tests for Change in Responses to Motivation for Change**

Variable	N	Z	Rank Basis
Motivation for Change	281	-0.019	-1

\* significant at the 0.05 level, \*\* significant at 0.01 level

**Figure 6. Pre- and Post-Training Responses to Survey Item “Increase Motivation”**



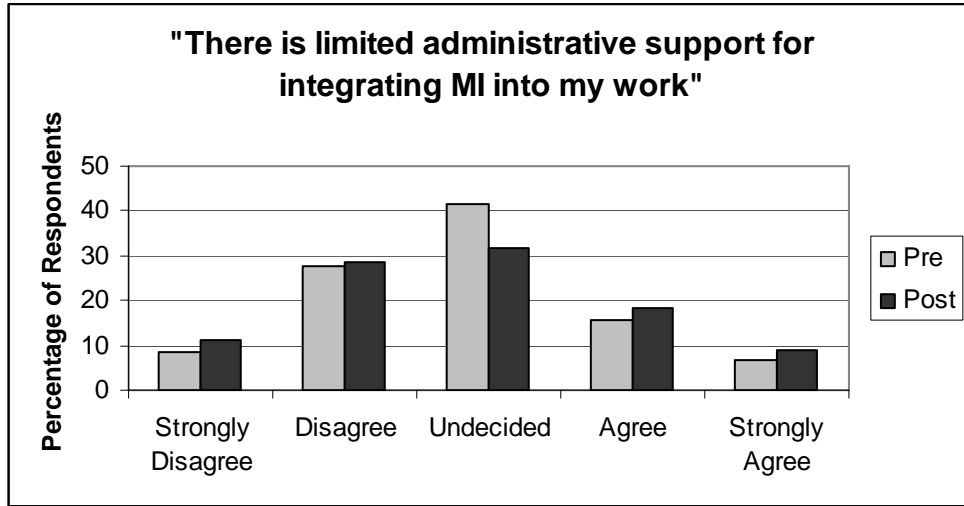
Prior to training, the majority of respondents stated that they disagreed with the statement that if a client is not initially motivated, they will be unable to increase his or her motivation. The responses to this survey item were very similar in the post-training questionnaire. The Wilcoxon Sign Rank test revealed no statistically significant differences in the pre- and post-training responses to this survey item. There was, however, a significant decrease in the pre- to post-training responses for Education employees, suggesting that this group was more likely to disagree or strongly disagree with this statement after training than they were before training.

**Table 11. Wilcoxon Sign Rank Tests for Change in Responses to Increase Motivation**

Variable	N	Z	Rank Basis
Increase Motivation	284	-0.337	+8

\* significant at the 0.05 level, \*\* significant at 0.01 level

**Figure 7. Pre- and Post-Training Responses to Survey Item “Administrative Support”**



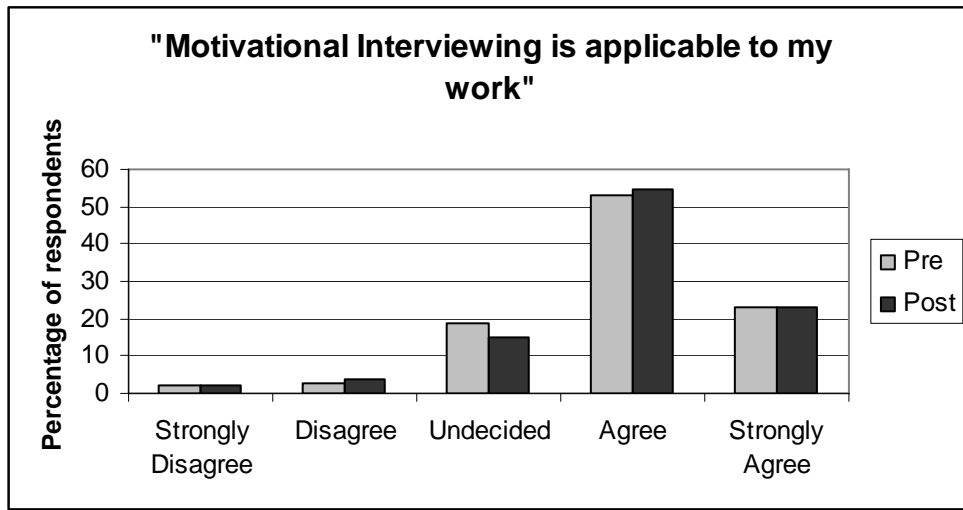
Prior to training, respondents tended to state that they either disagreed or were undecided as to whether or not there was administrative support for integrating MI into their work. Visually, figure 10 suggests that a sizable number of respondents shifted their responses from undecided to either agree or disagree. However, the Wilcoxon test suggests that these pre- and post-training differences are not statistically significant. The overall distribution of responses from both questionnaires indicates that there is considerable variation in responses to this survey item, suggesting that trainees are unsure whether or not the Department of Corrections will offer administrative support for MI implementation.

**Table 12. Wilcoxon Sign Rank Tests for Change in Responses to Administrative Support**

Variable	N	Z	Rank Basis
Administrative Support	281	-0.182	-9

\* significant at the 0.05 level, \*\* significant at 0.01 level

**Figure 8. Pre- and Post-Training Responses to Survey Item “Applicable”**



Prior to training, the majority of respondents agreed or strongly agreed with the statement that MI is applicable to their work. The responses to this survey item were very similar in the post-training questionnaire. The Wilcoxon test revealed no statistically significant differences in the pre- and post-training responses to this survey item. There was, however, a significant increase in the pre- to post-training responses for Corrections employees with 3 to 5 years of experience, suggesting that this group was more likely to agree or strongly agree with this statement after training than they were before training.

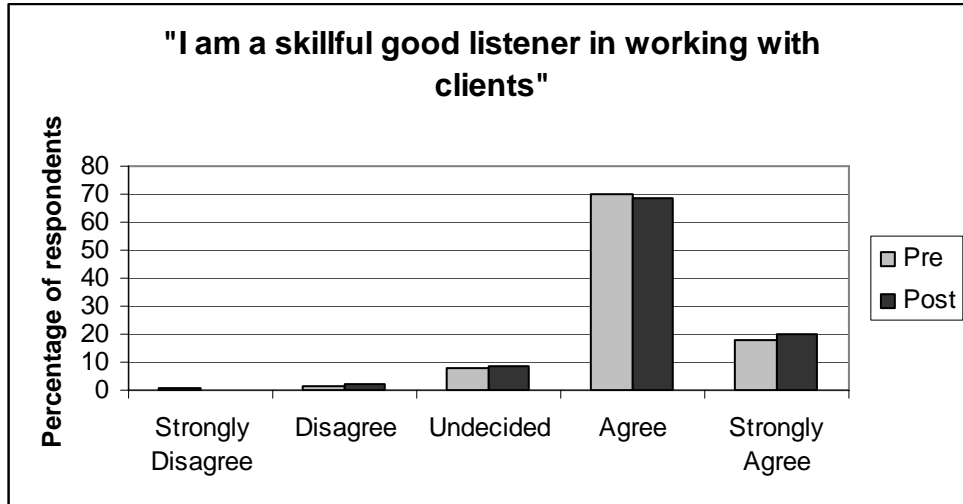
**Table 13. Wilcoxon Sign Rank Tests for Change in Responses to Applicable**

Variable	N	Z	Rank Basis
Applicable	279	-0.296	+10

\* significant at the 0.05 level, \*\* significant at 0.01 level

*Listen*

**Figure 9. Pre- and Post-Training Responses to Survey Item “Listen”**



Prior to training, the majority of respondents agreed with the statement that they are a skillful good listener when working with clients. The responses to this survey item were very similar in the post-training questionnaire. The Wilcoxon test revealed no statistically significant differences in the pre- and post-training responses to this survey item.

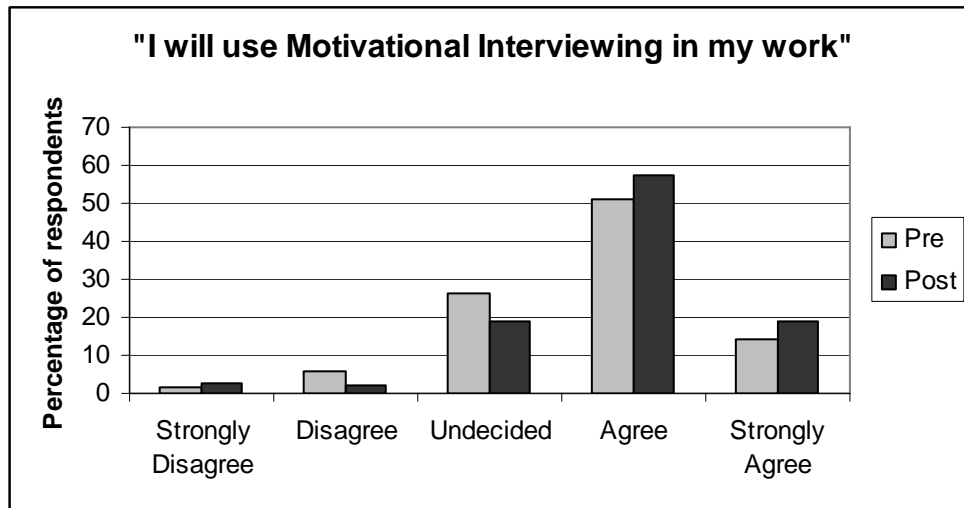
**Table 14. Wilcoxon Sign Rank Tests for Change in Responses to Listen**

Variable	N	Z	Rank Basis
Listen	280	-0.363	Even

\* significant at the 0.05 level, \*\* significant at 0.01 level



**Figure 10. Pre- and Post-Training Responses to Survey Item “Use MI”**



Prior to training, the majority of respondents agreed or strongly agreed that they will use MI in their work. The overall pattern of responses was similar after training, although even more people respondents suggested that they would use MI in their work, while fewer respondents were undecided about whether or not they would use MI. The Wilcox test suggests that this increase is statistically significant, suggesting that the training was potentially successfully in increasing the use of MI among Corrections personnel. In the disaggregated analyses, this increase was only statistically significant for employees with 1 to 5 years of education beyond high school and for employees with 3 to 5 years of experience.

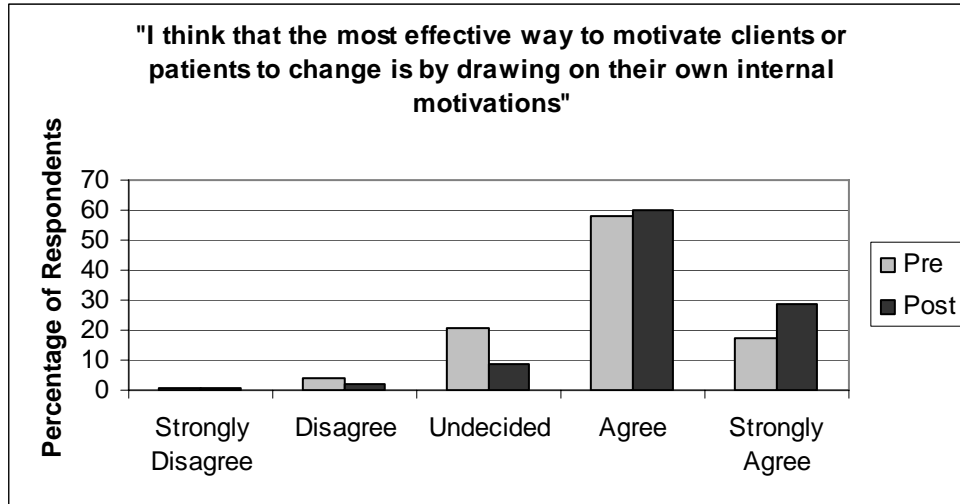
**Table 15. Wilcox Sign Rank Tests for Change in Responses to Use MI**

Variable	N	Z	Rank Basis
Use MI	282	-3.320**	+40

\* significant at the 0.05 level, \*\* significant at 0.01 level

*Internal Motivations*

**Figure 11. Pre- and Post-Training Responses to Survey Item “Internal Motivations”**



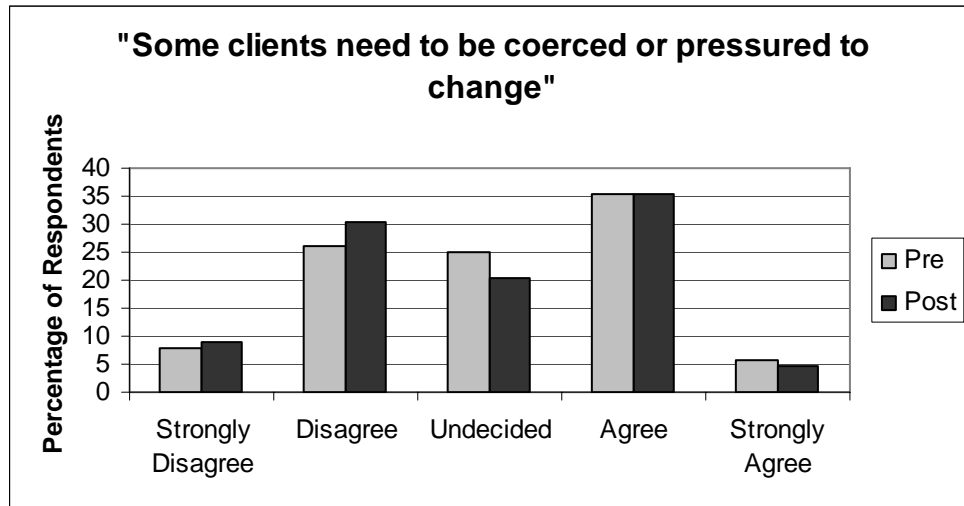
Prior to training, the majority of respondents agreed that the most effective way to motivate clients or patients is by drawing on their own internal motivations. The distribution of responses to this survey item was similar during after training. However, the proportion of respondents selecting “Undecided” declined from the pre- to post-training sessions, while the number of respondents selecting “strongly agree” increased. The Wilcoxon Sign Rank Test (presented in table 9) suggests that this change is statistically significant, as significantly more people answered that they agreed or strongly agreed with this statement following than training than before the training. In the disaggregated analyses, this increase was only significant for employees with 1 to 5 years of education beyond high school and for employees with 6 to 10 years of work experience.

**Table 16. Wilcoxon Sign Rank Tests for Change in Responses to Internal Motivations**

Variable	N	Z	Rank Basis
Internal Motivations	284	-5.097**	+65

\* significant at the 0.05 level, \*\* significant at 0.01 level

**Figure 12. Pre- and Post-Training Responses to Survey Item “Coerce”**



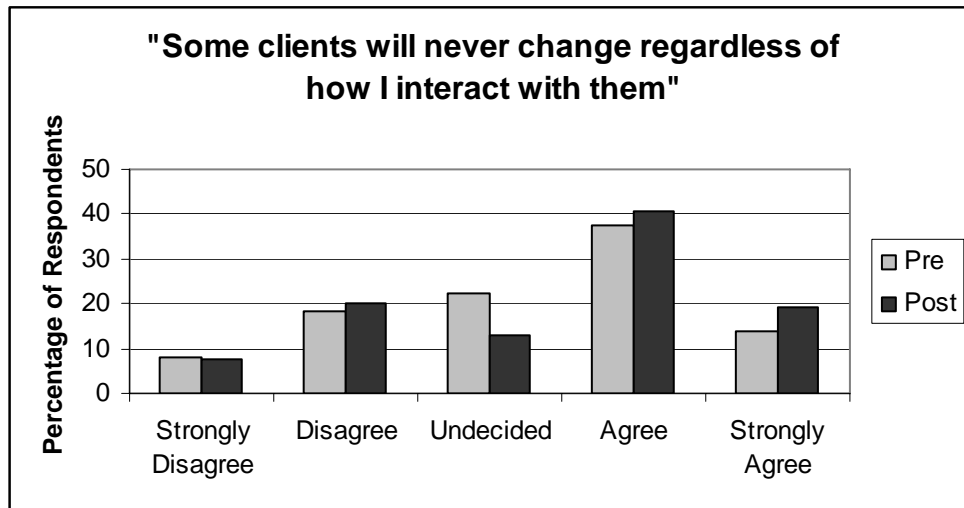
Prior to training, the distribution of responses to the statement that some clients need to be coerced or pressured to change varied considerably. While a large proportion of respondents disagreed with this statement, a substantial number of respondents were either undecided about or agreed with this statement. During the post-training questionnaire, the number of respondents that disagreed or strongly disagreed with this statement increased, while the number of respondents that were undecided decreased. The Wilcoxon test, however, suggests that the difference between pre- and post-training responses is not statistically significant.

**Table 17. Wilcoxon Sign Rank Tests for Change in Responses to Coerce**

Variable	N	Z	Rank Basis
Coerce	280	-0.921	+15

\* significant at the 0.05 level, \*\* significant at 0.01 level

**Figure 13. Pre- and Post-Training Responses to Survey Item “Change”**



Prior to training, the majority of respondents either agreed or strongly agreed with the statement that some clients will never change regardless of how the respondent interacts with them. After training, an even larger proportion of respondents agreed or strongly agreed with this statement. This suggests that something about the training sessions lead a subset of respondents to be more likely to agree with the idea that some clients will never change. While the Wilcox test suggests that the difference between pre- and post-training responses is not statistically significant, it should be noted that this result ( $z = -1.460$ ) is quite close to the traditional cutoff for statistical significance. Interestingly, the disaggregated analyses revealed a statistically significant decrease for both female trainees and probation and parole employees, suggesting that they were more likely to disagree or strongly disagree with this statement after the training than they were before the training.

**Table 18. Wilcox Sign Rank Tests for Change in Responses to Change**

Variable	N	Z	Rank Basis
Change	284	-1.460	-23

\* significant at the 0.05 level, \*\* significant at 0.01 level

### III. CONCLUSIONS

In general, the results of this study suggest that the MI training sessions were largely successful. There were statistically significant pre-post differences in several survey items that indicate that the training was useful. Specifically, we observe statistically significant differences in pre- and post-training responses that suggest that the training improved respondents' general understanding of the ideas and principles of MI, increased respondents' confidence in their ability to use MI, and resulted in an increase in the proportion of respondents claiming that would use MI in their day-to-day work. Given the short duration between the pre- and post-training surveys, we are confident that these changes are the result of the MI training. Corrections employees with 1 to 5 years of education beyond high school and 3 to 5 years of work experience were especially likely to claim that they would use MI following the training. Moreover, significantly more respondents during the post-training survey than the pre-training survey agreed or strongly agreed with the statement that the most effective way to motivate clients to change is to draw on their own internal motivations. Given the central role of utilizing internal motivations in the MI process, this finding suggests that respondents, in general, were more likely to buy in to the ideas behind MI following the training. This was especially true for employees with 1 to 5 years of education beyond high school and those with 6 to 10 years of work experience.

There were also several significant results in the disaggregated analysis that support the idea that the MI training sessions were useful. For example, the analysis disaggregated by occupation indicated employees from the Education Bureau were statistically more likely to disagree or strongly disagree during the post-training survey than they were during the pre-training survey with the idea that they could not increase an inmate's level of motivation. The analysis disaggregated by experience indicated employees with 3 to 5 years of experience were statistically more likely to agree or strongly agree during the post-training survey than they were during the pre-training survey with the statement that MI is applicable to their work.

In sum, there is a substantial amount of statistical evidence that suggests that the training was successful. Generally speaking, even the survey items that were not statistically significant do not necessarily point to failure in the training sessions. For example, the pre-post differences in the Motivation for Change item were not statistically significant. The item states that a "client's own level of motivation for change is important." We might expect a significant increase in this item as a result of the training (that is, a shift in the post training responses toward agree/strongly agrees). However, the majority of respondents agreed or strongly agreed with this item during the both the pre- and post-training surveys, indicating that respondents acknowledged the importance of a client's level of motivation before attending the training session. Given that the majority of respondents presented pro-MI responses before training, it would be misleading to claim that the training failed to increase respondents awareness of client motivation, as the respondents already placed value on this concept going into the training. Similar arguments could be presented for the survey items Lack of Motivation, Frustration, and Listen. The results for the survey items Coerce and Change are more ambiguous, but

suggest that despite the training and general support for MI, it is clear that corrections personnel believe there are some clients for whom this technique will not work. We cannot specify which or how large of a population they believe that MI is inappropriate for, but it is important to understand that they are skeptical that this is the best approach for everyone.

While the results of this analysis largely suggest that the training was successful, this research has several limitations that warrant discussion. First, as discussed in the beginning of this report, the data from the pre- and post- training surveys suffered from a variety of inconsistencies. These inconsistencies include non-matching cases (that is, cases where respondents selected different values for items like gender, experience, and education during the pre- and post- surveys), non-completion (cases where a respondent answered only the pre- or post- survey), and missing values (cases where a respondent did not answer all of the items on a survey at one or both time points). These data inconsistencies restricted the available sample size and minimized the statistical power of the analyses. More importantly, the data inconsistencies limit our ability to generalize about the MI training participants. It may be the case that the individuals that were dropped from the analysis (either due to non-matching pre- and post- surveys or due to missing data) are in general substantively different than the individuals that remained in the survey. And finally, it should be noted that while the results of these analyses suggest that the training was generally successful, this report does not address the actual implementation of MI. In order to determine the long-term success of these MI training sessions, we would first need to know who is actively using MI and how proficient they are at MI. In order to test the long-term utility of MI, we would need to construct a research project with a comparative design that examines clients receiving MI to a comparable control group not receiving MI. The current data cannot address either of these issues and therefore should not be used to overstate the success of MI training.

## Appendix A: Wilcoxon Sign Rank Test on Disaggregated Data

Males only

Variable	N	Z	Rank Difference
Ideas	128	-5.561***	+ 48
Proficient	127	-4.613***	+ 40
Lack of Motivation	127	-1.206	- 5
Frustration	128	-.155	- 5
Motivation for Change	128	-.337	- 4
Increase Motivation	128	-1.695	+ 16
Administrative Support	126	-.127	- 7
Applicable	128	-.349	+ 9
Listen	126	-.007	+ 1
Use MI	128	-2.663**	+ 20
Internal Motivations	128	-4.045***	+ 30
Coerce	128	-.865	+ 8
Change	128	-.698	Even

Note, all tests utilize the (post – pre) difference.  
 \* significant at the 0.05 level, \*\* significant at 0.01 level

Females only

Variable	N	Z	Rank Difference
Ideas	156	-6.633***	+ 64
Proficient	155	-4.352***	+ 44
Lack of Motivation	156	-.746	- 4
Frustration	155	-.350	- 6
Motivation for Change	153	-.318	+ 3
Increase Motivation	156	-1.246	- 8
Administrative Support	155	-.339	- 2
Applicable	151	-.656	- 3
Listen	154	-.496	- 1
Use MI	154	-2.139*	+ 20
Internal Motivations	156	-3.221***	+ 25
Coerce	152	-.481	+ 7
Change	156	-2.500*	- 23

Note, all tests utilize the (post – pre) difference.  
 \* significant at the 0.05 level, \*\* significant at 0.01 level

Education Employees only

<b>Variable</b>	<b>N</b>	<b>Z</b>	<b>Rank Difference</b>
Ideas	82	-4.199***	+ 27
Proficient	81	-4.152***	+ 28
Lack of Motivation	81	-.321	- 1
Frustration	81	-.871	- 6
Motivation for Change	81	-.052	- 1
Increase Motivation	82	-2.951**	+ 20
Administrative Support	81	-.887	+ 3
Applicable	79	-.293	Even
Listen	79	-1.576	- 9
Use MI	80	-2.349*	+ 16
Internal Motivations	82	-2.220*	+ 16
Coerce	80	-1.413	+ 8
Change	82	-.207	- 3

Note, all tests utilize the (post – pre) difference.  
 \* significant at the 0.05 level, \*\* significant at 0.01 level

Probation and Parole only

<b>Variable</b>	<b>N</b>	<b>Z</b>	<b>Rank Difference</b>
Ideas	177	-6.716***	+ 72
Proficient	176	-4.408***	+ 46
Lack of Motivation	177	-1.874	- 12
Frustration	177	-.228	- 4
Motivation for Change	175	-.388	+ 4
Increase Motivation	177	-1.551	- 14
Administrative Support	175	-.141	- 10
Applicable	176	-.209	+ 3
Listen	176	-.219	+ 4
Use MI	177	-2.305*	+ 23
Internal Motivations	177	-4.138***	+ 41
Coerce	175	-.234	+ 6
Change	177	-2.108*	- 23

Note, all tests utilize the (post – pre) difference.  
 \* significant at the 0.05 level, \*\* significant at 0.01 level



Respondents with 1 to 5 years of education only

<b>Variable</b>	<b>N</b>	<b>Z</b>	<b>Rank Difference</b>
Ideas	201	-7.062**	+ 77
Proficient	199	-5.268**	+60
Lack of Motivation	201	-0.962	-5
Frustration	201	-0.416	-9
Motivation for Change	199	-0.170	+4
Increase Motivation	201	-1.153	-10
Administrative Support	199	-0.247	-7
Applicable	199	-0.086	+4
Listen	199	-0.109	+1
Use MI	201	-3.380**	+32
Internal Motivations	201	-4.721**	+48
Coerce	197	-0.821	+12
Change	201	-1.086	-17
Note, all tests utilize the (post – pre) difference. * significant at the 0.05 level, ** significant at 0.01 level			

Respondents with more than 5 years of education only

<b>Variable</b>	<b>N</b>	<b>Z</b>	<b>Rank Difference</b>
Ideas	80	-4.598**	+32
Proficient	80	-3.297**	+22
Lack of Motivation	79	-0.938	-3
Frustration	79	-0.068	-2
Motivation for Change	79	-0.166	-5
Increase Motivation	80	-2.421*	+17
Administrative Support	79	-0.005	-1
Applicable	78	-0.421	+2
Listen	78	-0.480	-1
Use MI	78	-1.027	+9
Internal Motivations	80	-1.809	+14
Coerce	80	-0.329	+2
Change	80	-1.340	-9
Note, all tests utilize the (post – pre) difference. * significant at the 0.05 level, ** significant at 0.01 level			

Respondents with 0 to 2 years of work experience only

<b>Variable</b>	<b>N</b>	<b>Z</b>	<b>Rank Difference</b>
Ideas	83	-4.137**	+27
Proficient	82	-3.545**	+26
Lack of Motivation	83	-0.472	+5
Frustration	82	-1.340	+4
Motivation for Change	83	-0.560	+3
Increase Motivation	83	-1.008	-5
Administrative Support	82	-0.406	-5
Applicable	83	-1.841	-11
Listen	82	-1.421	-7
Use MI	83	-0.800	+6
Internal Motivations	83	-3.902**	+23
Coerce	82	-1.967	-9
Change	83	-1.807	-13
Note, all tests utilize the (post – pre) difference. * significant at the 0.05 level, ** significant at 0.01 level			

Respondents with 3 to 5 years of work experience only

<b>Variable</b>	<b>N</b>	<b>Z</b>	<b>Rank Difference</b>
Ideas	63	-4.168**	+30
Proficient	63	-2.324*	+13
Lack of Motivation	63	-1.717	-12
Frustration	63	-1.322	-14
Motivation for Change	63	-0.608	+4
Increase Motivation	63	-1.391	-6
Administrative Support	62	-0.422	+1
Applicable	62	-1.999*	+10
Listen	62	-1.877	+8
Use MI	63	-3.159**	+18
Internal Motivations	63	-2.407*	+12
Coerce	63	-1.189	+8
Change	63	-0.647	+4
Note, all tests utilize the (post – pre) difference. * significant at the 0.05 level, ** significant at 0.01 level			

Respondents with 6 to 10 years of work experience only

<b>Variable</b>	<b>N</b>	<b>Z</b>	<b>Rank Difference</b>
Ideas	66	-4.290**	+28
Proficient	66	-2.847**	+19
Lack of Motivation	65	-0.736	-7
Frustration	66	-0.406	Even
Motivation for Change	65	-0.470	-3
Increase Motivation	66	-2.227*	+10
Administrative Support	66	-0.429	-2
Applicable	63	-0.455	+5
Listen	65	-0.853	+4
Use MI	65	-1.184	+7
Internal Motivations	66	-1.568	+13
Coerce	65	-2.786**	+15
Change	66	-1.244	-10
Note, all tests utilize the (post – pre) difference. * significant at the 0.05 level, ** significant at 0.01 level			

Respondents with over 10 years of work experience only

<b>Variable</b>	<b>N</b>	<b>Z</b>	<b>Rank Difference</b>
Ideas	72	-4.511**	+27
Proficient	71	-4.058**	+26
Lack of Motivation	72	-0.351	+5
Frustration	72	-.280	-1
Motivation for Change	70	-0.832	-5
Increase Motivation	72	-1.052	+9
Administrative Support	71	-0.070	-3
Applicable	71	-0.500	+2
Listen	71	-0.258	-5
Use MI	71	-1.325	+9
Internal Motivations	72	-2.556*	+17
Coerce	70	-0.094	+1
Change	72	-0.522	-4
Note, all tests utilize the (post – pre) difference. * significant at the 0.05 level, ** significant at 0.01 level			