
Mary T. Hodorowicz, MSW, LCSW-C

EDUCATION

- PhD** Anticipated May 2018, University of Maryland School of Social Work
Dissertation Title: *Teaching and learning Motivational Interviewing: Examining the efficacy of two training methods for social work students*
Chair: Dean Richard Barth
Committee: Drs. Theresa Moyers, Paul Sacco, Frederick Strieder, & Bethany Lee
- MSW** 2007, University of Maryland School of Social Work, Baltimore, MD
Primary Concentration: Clinical
Secondary Concentration: Management and Community Organization
Specialization: Families and Children
- BS** 2004, University of Pittsburgh, Pittsburgh, PA
Major: Psychology
Related Area: Sociology

LICENSURE

- Maryland Licensed Certified Social Worker-Clinical, License Number 20650
- Board approved clinical supervisor

POST-MSW TRAINING

- 2008 Certificate Program in Adoption, Rutgers, The State University of New Jersey
2017 Training of New Trainers, Motivational Interviewing Network of Trainers

RESEARCH & PROFESSIONAL INTERESTS

- Child maltreatment prevention
- Substance use
- Social Work teaching & training methods
- Child welfare and at-risk youth populations
- Mental and behavioral health treatment
- Motivational Interviewing

TEACHING & TRAINING

HIGHER EDUCATION

Adjunct Faculty Teaching, University of Maryland School of Social Work

- MSW Foundation Courses:
 - Social Work Practice with Groups and Families, Spring 2017 & 2018
 - Social Work Practice with Individuals, Fall 2015 & 2016
 - **Awarded Dean's Teaching Award based on course evaluation scores**

Motivational Interviewing (MI) Trainer, University of Maryland School of Social Work

- Introduction to MI for Title IV-E (Child Welfare) MSW Students, 2015, 2016, 2017
- Introduction to MI for SW Professionals (CEU department), 2016 & 2017
- Motivational Interviewing in Social Work Certificate Program, CEU Department
 - Created a 45 hour post-grad professional education program
 - Launching in April 2018 and continuing through August 2018

COMMUNITY BASED ORGANIZATIONS

Local Trainings, in Baltimore MD

- *Motivational Interviewing: What is it and How can I use it?* United Way of Central Maryland, Fall 2017
- *Intervention Techniques for Working with Children Who Have Experienced Trauma and Attachment Disruptions*, Family Connections, Spring 2015
- *Improving your MI Skills and Supervision via Coding: Introduction to the MITI*, Kennedy Krieger Institute, April 2017
- *Using Motivational Interviewing in Clinical Practice with Adoptive Families: Attachment and Trauma Sensitive Behavior Change Skills*, The Center for Adoption Support and Education, scheduled for February 2018

International Trainings, with Fulbright Scholar Amy Garzón Hampton, Nicaragua, Spring 2016

- *Introduction to MI*, presentation for psychology students and professors at the Universidad Centroamericana UCA de Nicaragua
- *Core Social Work Communication Skills*, training for employees at The House of Refuge Children's Home
- *Impact of Trauma on Children*, training for employees at The House of Refuge Children's Home

COLLABORATIONS

The University of Maryland Center for Health & Homeland Security (CHHS),

- with Shanna Batten, JD, and Lisa Fedina, PhD, scheduled for Spring 2018
- *Core Concepts of Radicalization: Prevention and Intervention*, pilot and launch
- Training providing comprehensive presentation of methods of prevention and intervention regarding ideologically-influenced violence. Directed to service providers (e.g., social workers, mental health providers) from multiple local organizations within specified county.

RESEARCH EXPERIENCE

GRADUATE RESEARCH ASSISTANT POSITIONS

Dr. Melissa Edmondson-Smith, UMB SSW, Summer 2017-Current

- IRB assistance, interviewer and transcriber for qualitative study: *Exploring Community Integration for Diverse Individuals with Severe Mental Illness*
- Assisting in training creation, continuing education approval, administrative support, and other research related duties for R34: *Social Work Training to Reduce Duration of Untreated Psychosis*

Dr. Paul Sacco, UMB SSW, Fall 2015- Summer 2016

- Assisted with design and implementation a study of liver transplant recipients with a history of liver disease and alcohol consumption
 - Participated in partnership meetings with University of Maryland Medical Center
 - Assisted with initial IRB application
 - Aided in survey creation and created survey in Qualtrics, online platform
 - Recruited research participants via mail and phone contact
 - Conducted over-the-phone interviews for participants who preferred verbal survey administration over online or by-mail
 - Managed survey data in initial stages of study

Drs. Frederick Strieder & Edward Pecukonis, UMB SSW, Fall 2012-Spring 2015

- Assisted with design and project management of a randomized control trial testing a method of teaching Motivational Interviewing to MSW students
 - Conducted additional literature reviews
 - Helped with research design and timeline creation
 - Coordinated and organized logistics of research team meetings including four multi-day consulting visits from Dr. Theresa Moyers
 - Aided with proposal writing for Teaching Scholar Award, including preparation of budget and incentive decisions
 - Co- completed IRB application with PI and other team members
 - Co-created Qualtrics survey
 - Recruited study participants

- Worked with SSW technology staff to develop a VIBE website for submission of research data by participants and management of research data
- Coordinated, organized, and participated in MITI coding training facilitated by Dr. Theresa Moyers
- Coded study tapes, entered data into Excel and SPSS
- Responsible for maintaining study data
- Assisted with data analysis and article write up
- Assisted with CSWE APM presentation application and creation
- Aided in creation of trainings and presentations including a 6 session training on trauma for Montgomery County DSS and a session on characteristics of a trauma informed juvenile justice system for DJS
- Created method for organizing and storing client videos at Family Connections, trained staff to implement
- Assisted at Family Connections with clients, groups, and other projects as needed
- Assisted with Public Health in Social Work Education Program, including Teaching Assistance for Maternal and Child Health course and providing leadership for MSW Public Health Social Work Scholars

Research Assistant, for Motivational Interviewing Team, Summer 2012

- Conducted literature searches, reviewed and summarized literature on the topic of motivational interviewing, supervision in social work, and live supervision

MSW Research Assistant Scholar for Dean Richard Barth, UMB School of Social Work, 2006-2007

- Searched and reviewed electronic databases and paper sources for literature relevant to research projects, presentations, and other publications regarding child welfare
- Assisted with creating Power Point presentations, revising a book chapter on adoption, and writing research article on former foster youth
- Assisted with other child welfare related projects as assigned

PROFESSIONAL EXPERIENCE

Program Director, Chesapeake Center for Youth Development, Baltimore, MD
July 1, 2015-December 31, 2016

Transitional Age Youth Program

- Provided clinical assessment, socioemotional support, and financial assistance via grant funding to youth age 16-25 with mental health diagnosis
- Provided 1:1 clinical support, planned and implemented groups, facilitated social outings
- Assisted with goal setting and attainment related to well-being, educational, and vocational goals

- Managed purchase of service budget for youth, awarding of funding, all other necessary program financial documentation requirements and submitted to grant monitor on monthly basis
- Supervised program case manager and MSW interns as field instructor

Intervention Manual Author, Benjamin Franklin Community School, Baltimore MD
Summer, 2015

United Way Family Center

- Independent consultant, hired with financial support from the Greater Homework Community Corporation, to compose an intervention manual for the “Ben Center”
- Collaborated and conducted interviews with key personnel, including administrators and direct service staff, to compile documents, checklists, protocols, and other essential information for intervention manual creation

Therapist, Robins’ Nest, Inc., Children and Family Services, Glassboro, NJ
July 2007-November 2014

Danellie Counseling Services & Programs, and Child & Adolescent Wellness Clinic

- Provided individualized, strength-based out-patient therapeutic intervention for socio-culturally diverse children, adolescents and teens, involving their caregivers and collaborating with other supports when appropriate
- Utilized EBPs in treatment thru integrating CBT techniques, MI skills, attachment sensitive and trauma informed interventions
- Completed initial assessments, progress notes, service plans, and all other necessary case paperwork and documentation in electronic client records
- Collaborated and consulted with staff psychiatrist, referring clients for additional assessment as needed
- Maintained licensure and credentialing as necessary for compliance with Medicaid and private insurance billing

Therapist, Robins’ Nest, Inc., Children and Family Services, Glassboro, NJ
July 2007-January 2012

Foster, Kinship, and Adoption Counseling Services Program

- Provided in-home therapeutic intervention for socio-culturally diverse foster, adoptive and kinship families, heavily utilizing attachment and trauma based treatment
- Maintained professional communication with each family’s DYFS case worker
- Completed initial assessments, service plans, termination summaries, after care plans, and all other necessary case paperwork and documentation
- Developed, planned, managed budget, and facilitated a monthly support group for teens adopted through child welfare services
- Developed, planned, managed budget, and facilitated a monthly support group for Kinship caregivers
- Participated on Quality Council Committee, reviewing program goals, outcomes, safety incidents for risk management, measurement tools, and other quality indicators

- Cultural Competence Training Committee member, collaborating with other personnel to create agency wide training, held annual and aimed at increasing knowledge of working with diverse populations and increasing need for self-awareness of bias and prejudices
- Coordinated agency wide trainings from 2011-2012 including budget, logistics, personnel sign up, and CEU applications and certificates as needed

Child Therapist Intern, House of Ruth, Domestic Violence Shelter, Baltimore, MD
Field placement, September 2006-April 2007

Children's Program, Therapy Department

- Provided individual and family intake assessments and treatment planning services to socio-culturally diverse population in residential and community setting
- Managed caseload of individual child therapy clients, utilized play therapy
- Lead and co-lead psychoeducational groups for children ages 3-5, 6-8
- Provided parenting support and education in individual sessions

Intern Counselor, Chesapeake Center for Youth Development, Alternative School, Baltimore MD

Field placement, September 2005-April 2006

Clinical Department

- Completed psychosocial assessments and managed caseload of individual therapy clients
- Lead and co-lead group sessions
- Worked with students to develop and implement goal achievement plans
- Collaborated with teachers, therapists, probation officers, social workers and family members to develop individualized treatment and education plans

Human Service Worker, Daisyfields Foundation, Inc., Baltimore, MD, 2005 – May 2007

- Collaborated with medical, facility, and Department of Social Services staff to provide case management for drug-exposed newborns in residential treatment facility
- Prepared monthly progress reports evaluating and tracking each child's development
- Prepared monthly attendance and billing to be submitted to Department of Social Services
- Assisted in reviewing pertinent literature to maintain current methods, statement of need, and search for project funding
- Assisted caregivers with nurturing and caring for infants as needed

Intern Caseworker, Allegheny County's Children, Youth and Families, Pittsburgh, PA

Part-time field placement, September 2003-May 2004

Child Welfare Continuing Services Unit

- Managed individual caseload and assisted other unit members

- Completed home visits to assess children's emotional and physical safety
- Worked with parents and children to establish, achieve, and maintain goals
- Utilized and collaborated with community resources to obtain additional help for families
- Prepared for and presented cases in court

SERVICE

PhD Program Student Service, University of Maryland School of Social Work, 2012-Current

- PhD Recruitment and Retention Committee Co-Chair
- PhD Program Committee member
- Diversity and Anti-Oppression Committee PhD student representative
- Annual PhD Program Information Event Coordinator for MSW RA Scholars

Motivational Interviewing Network of Trainers, October 2017-Current

- Motivational Interviewing Across Cultures (MIAC) Committee member,
 - Virtual meeting with MINT members across the globe with the goal of increasing and improving access to MINT for multilingual MI trainers and for those in under resourced and underrepresented areas of the world

The Active Children Excel (ACE) Project Volunteer, Baltimore, MD Spring 2015-Current

- Engage elementary age youth in tennis camps located in West Baltimore, supporting them as they learn new physical skills coupled with socioemotional learning support
- Partner with on-site community members and school personnel to promote sustainable and collaborative relationships

Chill Foundation Volunteer & Assistant Coordinator, Carroll Valley, PA, January 2014-Current

- Support at-risk and underserved youth from Baltimore and Washington DC as they learn to snowboard with the goal of building self-esteem and life skills through the experience
- Participate in fundraising events including planning, coordination, event support, and collection of fund and donations

Global Service Learning, Santarém, Brazil, May 2004

- Worked with group and local community members to build a center for at-risk youth
- Attended classes and completed a research paper regarding the issue of child abuse and neglect, received college credits

PUBLICATIONS

Barth, R.P., Duncan, D.F., Hodorowicz, M.T., & Kum, H. (2010). Felonious arrests of

former foster care and TANF-involved youth. *Journal of the Society for Social Work and Research*, 1(2), 104-123.

Barth, R.P., & Hodorowicz, M.T. (2011). Foster and adopted children who die from filicide: What can we learn and what can we do. *Adoption Quarterly*, 14(2), 85-106.

Pecukonis, E., Greeno, E., Hodorowicz, M., Park, H., Ting, L., Moyers, T.,... Wirt, C. (2016). Teaching motivational interviewing to child welfare social work students using live supervision and standardized clients: A randomized control trial. *Journal of the Society for Social Work and Research*, 7(3), 479-505.

Greeno, E.J., Ting, L., Pecukonis, E., Hodorowicz, M., & Wade, K. (2017). The role of empathy in training social work students in motivational interviewing. *Social Work Education*, 36(7), 794-808.

Barth, R.P., Lee, B.R., & Hodorowicz, M.T. (2017). Equipping the child welfare workforce to improve the well-being of children. *Journal of Children's Services*, 12(2-3), 211-220.

PRESENTATIONS

Pecukonis, E., Park, H., Greeno, E.J., & Hodorowicz, M. (October, 2015). *Teaching and assessing motivational intervening using supervision and simulation: A randomized control trial*. Paper presented at the annual meeting of the Council on Social Work Education. Denver, Co.

Wirt, C., Linsenmeyer, D., Wade, K., & Hodorowicz, M. (October, 2015). *Linking Field Instruction and Classroom Education in Teaching Motivational Interviewing*. Paper presented at the annual meeting of the Council on Social Work Education. Denver, Co.

Pecukonis, E., Park, H., Greeno, E.J., & Hodorowicz, M. (January, 2016). *Teaching motivational interviewing to child welfare social work students using live supervision and standardized clients: A randomized control trial*. Paper presented at the Society for Social Work and Research 20th Annual Conference, Washington, D.C.

Tuten, M., Sacco, P., LaMattina, J., Sultan, S., & Hodorowicz, M. (June, 2017). *Substance use and substance use disorder (SUD) treatment utilization among liver transplant recipients with alcohol-related liver disease*. Poster presented at the annual scientific meeting of the Research Society on Alcoholism, Denver Colorado.

Hodorowicz, M. (May, 2018). *Motivational Interviewing: An empirically supported treatment for behavior change that can work efficiently and effectively with mandated clients in child welfare*. Proposal accepted for presentation during the 2018 International Conference on Working with Involuntary Clients, Center for the Advanced Studies in Child Welfare & Monash University, Prato Italy.

ABSTRACT

Title of Dissertation: Teaching and Learning Motivational Interviewing:

Examining the Efficacy of Two Training Methods for Social Work Students

Mary T. Hodorowicz, Doctor of Philosophy, 2018

Dissertation Directed by: Richard Barth, PhD

This study examines the efficacy of two innovative training methods used to teach beginning Motivational Interviewing (MI) skills to social work students in a child welfare training program. The two training methods tested include live supervision (LS), a small group experiential learning interaction with standardized client actors (SCAs), and in-the-moment guidance from a supervisor, and a coding learning method (CL), where students in a classroom setting are introduced to MI skill development via learning core MI concepts as identified in the Motivational Interviewing Treatment Integrity Coding Manual 4.2.1. Comparison between these methods was enhanced with a randomized controlled trial design. Changes in MI knowledge, attitudes, and MI skill were assessed over three time points through self-report and observational measures. The study also evaluated participant satisfaction and efficiency of training methods via examination of educational resources required by each training method. After participating in pre-test measures, 17 student participants were randomized to receive either the LS or CL training. Both trainings provided 12 hours of MI training instruction over a period of two days. Students were assessed post-training, and at 5 months follow-up, after a semester of learning-as-usual. T-tests and ANOVAs were used to examine efficacy of training methods. Results show that both groups demonstrated an improvement in MI knowledge and attitudes from pre-test to follow-up. MI skill gain within groups varied for specific

MI skills. There was no difference between groups in participant training satisfaction for 10 out of 13 satisfaction items. Participants in the LS group endorsed a higher level of satisfaction than the CL training participants for the remaining 3 training satisfaction items. The LS training method is more costly and requires more resources than the CL training method. Findings suggest participants in both groups were satisfied with the training experience, both training methods are effective for improving MI knowledge and attitudes, the LS training method requires more resources than the CL method, and training method effectiveness varied for specific MI skills. Implications for social work education, MI training, and future research are discussed.

Keywords: motivational interviewing, social work education, standardized clients, live supervision, MITI coding, training methods

Teaching and Learning Motivational Interviewing:
Examining the Efficacy of Two Training Methods for Social Work Students

by
Mary T. Hodorowicz

Dissertation submitted to the Faculty of the Graduate School of the
University of Maryland, Baltimore in partial fulfillment
of the requirements for the degree of
Doctor of Philosophy
2018

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Dedication

In dedication to the memory of Jeongseok Kong and Dr. Donna Harrington.

Acknowledgements

I would like to acknowledge the support, care, and guidance of those who made this dissertation possible. I would like to thank my mentor and dissertation committee chair, Dean Richard Barth. The mentorship Dean Barth has provided to me for over a decade has positively impacted my career as a social worker and made me a stronger student, colleague, clinician, researcher and teacher. I am grateful to each and every one of my committee members. Dr. Frederick Strieder dedicated countless hours to this project, and the completion of this research study was possible because of his guidance and selflessness. Dr. Theresa Moyers generously shared her expertise in Motivational Interviewing research and practice, the knowledge and skills she has taught me are priceless and will be carried into my future work. Dr. Paul Sacco compassionately encouraged me throughout this process and provided useful analyses advice and a much needed push to finish strong at the end. Dr. Bethany Lee demonstrated a commitment to excellence for the duration of this dissertation and this study is stronger because of her careful attention to detail, creative ideas, and suggestions.

My experience as a PhD student would not have been the same without the care and guidance of everyone around me at the UMB SSW. My fellow 2012 cohort friends Anusha, Kelly, Brittany, Melissa, Leah, Colby, Karen, Mat, Amy, and the late Jeong made this journey memorable and I would not have made it through without them. Jen Canapp provided countless hours of helping, fixing, answering questions, and anything else that needed to be accomplished. She is the unsung hero of this program and we would all be lost without her. The late Dr. Donna Harrington, whose advice, problem solving, and nurturing steadfastly guided me along my tumultuous PhD journey. My heart is so grateful for her, her work, her kindness, her integrity, and her generous soul.

Her selfless spirit and commitment to social justice will live on through the mentoring and knowledge she provided to all of us, her “ducks”.

My family and friends outside of the PhD program are owed a huge “Thank you” for cheering me on through this entire process and being so understanding when my work and educational commitments interfered with my ability to be present for many important milestones in their lives. You also listened to me whine and complain a lot. You know who you are, and you know I could not have done this without you. My grandmothers, the late Józefa (Josephine) Hodorowicz and Marie Mealey Wilmot, who modeled and taught me about being a strong and determined woman. Last but certainly not least, I owe every ounce of my success to my parents, Andrew and Patricia Hodorowicz. My parents taught me how to work hard, not give up, follow through on commitments, and provide me with unwavering support and unconditional love. I would not be the person I am today without them. I have always been safe, secure, and provided for, and it is only because of their giving and loving ways that I am able to support others and be a successful social worker.

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CHAPTER ONE: INTRODUCTION

Purpose

The purpose of social work education is to prepare social work students for practice and assess their ability to demonstrate specific practice competencies (CSWE EPAS, 2015). In competency-based education, knowledge and skills are grounded in scientific inquiry and best practices, while also being consistent with social work (SW) values. Educational goal attainment occurs through the deployment of specific factors within both the explicit and implicit curriculum. The explicit curriculum refers to educational structure, such as course content, and implicit involves the learning environment, including factors such as faculty qualifications and teaching methods (CSWE, 2015). As a result, both the explicit and implicit curriculum should be based in science or best known practice.

The present dissertation project first identifies Motivational Interviewing (MI) as a practice grounded in science and consistent with SW values, appropriate for inclusion in explicit curriculum within social work education (Hohman, Pierce, & Barnett, 2015; Pecukonis et al., 2016; Smith, Hohman, Wahab, & Manthey, 2017; Tennille, 2013). Motivational Interviewing is: “a collaborative, goal-oriented style of communication with particular attention to the language of change. Motivational Interviewing is designed to strengthen personal motivation for, and commitment to, a specific goal by eliciting and exploring the person’s own reasons for change within an atmosphere of acceptance and compassion” (Miller & Rollnick, 2013, p. 29). Learning and demonstrating observable MI skills directly aligns with five specific CSWE competencies, including the ability to engage, assess, intervene, and evaluate practice with diverse individuals, families, groups,

and communities. Additionally, MI is consistent with the second and fourth competencies: (1) demonstrate ethical and professional behavior and (4) engage in practice-informed research and research-informed practice. Therefore, MI skill and knowledge demonstration contributes to 7 of 9 observable CSWE competencies. MI is described in additional detail in the next section.

A framework for adult learning and model for adult skill acquisition are then presented as theoretical foundations. The dissertation project then works to increase access to MI learning through research to inform refinement of teaching methods appropriate for integration within SW curricula. The main goal of the project is to evaluate the effectiveness of two different methods of teaching beginning MI skills to social work students who will work in direct practice with children and families, especially the child welfare population. The two different teaching methods are identified as Live Supervision (LS) and Coding Learning (CL). A description of key features for each teaching method is can be viewed in Table 1. This study aims to evaluate differences between the LS and CL groups in the areas of (1) MI knowledge and attitude, (2) MI skill acquisition, (3) participant satisfaction with teaching method/training experience, and (4) educational resource efficiency over the course of the study. Additional details are provided in Chapter Four.

Motivational Interviewing & Competency-Based Social Work Education Evidence Based Practice in Social Work

A brief discussion of evidence-based practice (EBP) in social work education shows that MI offers a great opportunity for bringing more evidence based practice to social work. Training SW students in implementing evidence-based practice while using

teaching methods grounded in theory and prior research are important components of effective competency-based education. Despite the fit of EBP to competency-based education, integration of EBP into social work education has not been universal. Social work (SW) lacks a universally agreed upon definition of EBP (Yeager & Roberts, 2006) and there are varying approaches by schools of SW related to EBP. In this section, the conceptualization of EBP is first detailed. Then, the importance of why EBPs should be integrated into SW curriculum is provided.

EBP is conceptualized and used in two ways, as a noun and verb (Tennille, 2013), causing confusion. Incorporating EBP into teaching and practice is difficult for multiple reasons (Bledsoe et al, 2007; Najor-Durack, 2016; Tennille, 2013). Social work scholars describe implementing EBP in social work as a five step *process* (Cournoyer, 2016; Roberts & Yeager, 2006) but the term is also used to describe *interventions or treatments*. For example, the California Evidence-Based Clearinghouse for Child Welfare defines evidence-based practices as “those that have empirical research supporting their efficacy” (CEBC, 2017). This use is echoed in a foundations practice book stating that EBP is “the use of treatments for which there is sufficiently persuasive evidence to support their effectiveness in attaining the desired outcomes” (Rosen & Proctor, 2002 as cited in Roberts & Yeager, 2006, p. 6). Within the current study, , the term EBP is used as an intervention designation. More specifically, it is used to describe MI as an empirically supported treatment for behavior change.

EBPs should be included in SW curricula (Howard, Allen-Meares, & Ruffolo, 2007). Some SW educators and schools may feel as though EBPs are a passing trend that do not need to be taught, but “EBP has passed the tipping point of being a fad or rage”

(Barth, 2008, p. 145) Howard, Allen-Meares, and Ruffolo (2007) posit that "...the generalist model of social work education is pedagogically ill-suited to modern practice demands" and that "At a minimum, all MSW students should be able to evaluate the practice-relevant scientific literature and deliver at least one evidence-based intervention in a specific area upon graduation" (p. 564). To ensure competency in EBP, skill-based testing is necessary and should be employed (Howard, Allen-Meares, & Ruffolo, 2007).

Though the need for EBP in social work has been established, identifying EBPs appropriate for inclusion in SW curricula is complex due in part to the simultaneous need for meeting several, sometimes competing, requirements (Najor-Durack, 2016; Tenille, 2013). The EBP must be appropriate for social work client populations, including being adaptable to the many different types of individuals and groups social work students serve. The EBP must conform to CSWE EPAS standards and be congruent with the National Association of Social workers (NASW) code of ethics. The EBP must also be feasible to teach within a social work program, both legally and logistically. Feasibility challenges are detailed further in the paragraphs below.

There are challenges to integrating EBP teaching into SW education. Legally, some EBPs can only be taught within a sole authorized source, such as Functional Family Therapy (Functional Family Therapy Website, retrieved June 20, 2016 from <http://www.fftlc.com/>) or by certified trainers, such as Parent Child Interaction Therapy (Parent Child Interaction Therapy Website, retrieved June 20, 2016 from <http://www.pcit.org/certified-trainers.html>). When an EBP must be taught by a certified trainer or sole authorized source, this impacts the ability for the EBP to be taught within a school of social work. First, integration into current courses would not be possible by

current instructors, and it would not be feasible to have all instructors certified. One could argue that school of social work faculty could be certified trainers of EBP, though the current models of faculty teaching positions and certified training positions are not conducive to meeting the professional obligations of both roles. MI is an EBP that social work instructors can legally teach, and MI teaching can be integrated into current courses or offered as a stand-alone training or course.

Logistically, EBP implementation within a social work education program must fit within many predetermined factors including budgetary restrictions, class structure and timeframe, and course curriculum content. Other barriers to implementation include, but are not limited to: ideological differences, lack of SW representation in high quality EBP scientific literature (Howard, Allen-Meares, Ruffolo, 2007; Tennille, 2013), lack of support and time (Rubin & Parrish, 2007), and the resource intensive demands of EBP and an already crowded curriculum (Barth, 2008). Additionally, student opportunity and ability to practice skills associated with an EBP are limited due to limitations within field placements, a pedagogy of social work education., Field placements vary greatly, and field instructors' may lack knowledge of the method and/or not have the ability to implement and supervise implementation of the EBP within the placement (Parrish & Oxhandle, 2015).

Fit of Motivational Interviewing to Social Work Education and Practice

MI is an EBP that can fit social work practice standards, meet the varying needs of the populations served and can be taught within a school of social work (SSW) by faculty or adjunct faculty (Hohman, Pierce, & Barnett, 2015; Tennille, 2013). SAMHSA recognizes MI within its national registry of evidence-based programs and practices

(NREPP) and MI is included in the California Evidence-Based Clearinghouse for Child Welfare. MI can be integrated with other types of interventions (e.g. Chaffin et al., 2009; Leijten, Shaw, Gardner, Wilson, Matthys, & Dishion, 2015). MI increases efficiency of other interventions (Dishion et al., 2008). In addition to efficiency, MI can be effective at helping clients make healthy behavior change when delivered in small doses and in short term interventions (Gayes & Steele, 2014; Lundahl et al., 2013).

The cohesive relationship between MI and core social work principles (Hohman, 2012; Wahab, 2005) eases its uptake into social work education. Although the origins of MI are in addiction treatment, the client centered approach and emphasis on empathetic listening skills (Moyers & Miller, 2013) make it well suited to social work in addition to other fields of practice. MI can be used with diverse and at- risk populations (e.g., Chaffin, Bard, Bigfoot, & Maher, 2012; Smith, Knoble, Zerr, Dishion, & Stormshak, 2014). MI works across cultures and in various languages, making it culturally responsive and adaptable (Hohman, 2012; Miller et al., 2008; Smith et al., 2014). A growing number of social service agencies now integrate MI into their training (Snyder, Lawrence, Weatherhold, & Nagy, 2012), including the use of MI in home-based child maltreatment prevention and family preservation services (Silovsky, Leffingwell, & Hecht, 2009; Strieder, Wade, Talbot, Tabor, & Collins, 2014). Organizational challenges have been noted to present barriers to learning MI, so investing resources into training during education could be more cost and time efficient than attempting to train or retrain once in professional settings (Miller & Moyers, 2016). Finally, a qualitative study examining implementation of MI within a child welfare agency found it to be feasible,

and caseworkers felt MI was a “valuable tool” to help them in their work with families. (Snyder, Lawrence, Weatherhold, & Nagy, 2012, p. 9).

MI has the potential to be cost effective, as it does not require the purchase of a model or demand a certification. This means MI can be taught by SW faculty within schools of social work, pending mastery of logistical challenges and an effective method of teaching. The current number of social work programs teaching MI is unknown, however, the literature indicates that MI has been taught to social work students at several schools, and the practice is increasing. SSWs that have provided MI specific instruction include, but are not limited to, San Diego State University (Hohman, Pierce, & Barnett, 2015), University of Pennsylvania (Tennille, 2013), University of Maryland (Pecukonis et al., 2016), University of Illinois at Urbana-Champaign, and Portland State University (Smith, Hohman, Wahab, & Manthey, 2017). Additionally, not only are there benefits to teaching MI, there is literature that students can benefit from an MI adherent approach to teaching by educators (Dix, 2016; Venner & Verney, 2015). Overall, MI’s proven effectiveness in the area of supporting client behavior change coupled with its fit to social work values and its appropriateness for implementation with clients who are ambivalent about change make it an asset for use in social work settings (Hohman, 2012) and a useful evidence-based practice for social work students to gain measurable knowledge and skills.

Innovation in Teaching Motivational Interviewing to Social Work Students

Given that SW students should learn an EBP, and that MI is an EBP that is appropriate for inclusion in SW curriculum, methods of teaching MI to SW students should be well evaluated. Innovative methods for teaching MI to social work students

have been tested (Hohman, Pierce, & Barnett, 2015; Tennille, 2013; Pecukonis et al., 2016) but only one study used a randomized control design and evaluated observable MI skill attainment using the MITI, an observational coding measure. A randomized clinical trial (RCT) evaluated the impact of a Live Supervision (LS) method of teaching. LS is a simulation learning experience where students interact with a standardized client actor (SCA) and receive coaching and feedback in real-time via a supervisor watching the interaction via a live feed video and providing the student instruction via a wireless earpiece. For a description of key features of LS, please see Table 1. Results of the study showed that students exposed to the LS method of teaching MI demonstrated an increase in the MI skill of using complex reflections, as compared to teaching as usual (Pecukonis et al., 2016). Although this study was done within a school of social work this does not guarantee high replicability to other SSWs because the LS approach requires significant resources. For example, in order to implement the LS approach, two class rooms must be used simultaneously, audio visual technology must be available and set up, standardized client actors must be hired and trained, and multiple teachers must be available for the small group learning. This makes the likelihood of widespread adoption of LS to teach MI small as many SSWs lack adequate space and resources to manage this level of complexity and cost. Alternative, more efficient approaches deserve testing.

The current study builds on the implications and results of the LS RCT (Pecukonis et al., 2016). Specifically, this study assesses LS while strengthening the prior study design by adding a true baseline measure and assessing the trainers for MI skill fidelity using an observational measure. This study also implements an innovative comparison group, Coding Learning (CL) that provides the same amount of training time

as the LS group. Lack of equal training time was a criticism of the control group in the prior study because the “Learning as Usual” group in the prior study was a self-paced online learning experience. Coding Learning (CL) is a MI training curriculum designed to teach novice practitioners (students) basic MI concepts and skills via a behavioral coding tool called the Motivational Treatment Integrity Code (MITI) 4.2.1 (Moyers, Manual, & Ernst, 2014). The MITI 4.2.1 was originally designed as a quantitative measure to assess how well a provider uses MI. In the CL learning group, core MI concepts from the MITI 4.2.1 are used to provide instruction that does not require the learner to have situational experience (in this case, MI or therapy practice experience) or contextual knowledge prior to the training. For additional information on key features of both LS and CL training, please see Table 1.

TABLE 1: *KEY FEATURES OF CURRENT STUDY MI TRAINING METHODS.*

Motivational Interviewing Live Supervision (LS) Training Experiential Learning Method	
Training Day 1	Training Day 2
<ul style="list-style-type: none"> • 6 hours of training • 1 instructor • 1 classroom • Large group format • Focuses on foundational MI knowledge • Emphasis on the OARS <ul style="list-style-type: none"> • open-ended questions • affirmations • reflections • and summaries 	<ul style="list-style-type: none"> • 6 hours of training • 4 supervisors/instructors • 8 classrooms, paired into 4 learning labs using AV equipment • 4 standardized client actors (SCAs) • 4 small student groups <p>-Each student group works within a set of paired classrooms with an instructor and a SCA for the day.</p> <p>-Each individual student engages in a simulation session practicing their MI skills with a SCA, in a separate room.</p> <p>-The supervisor and other students watch the interaction from an observation room, via use of audio visual equipment.</p> <p>-The supervisor provides direct instruction and feedback about the student’s use of MI during the interaction.</p> <p>-The feedback and instruction is provided in “real-time” during the interaction using a microphone and ear piece.</p>

TABLE 1 CONTINUED: *KEY FEATURES OF CURRENT STUDY MI TRAINING METHODS.*

-After the interaction, the student receives feedback in small group format from the instructor, other students, and the SCA.	
Motivational Interviewing Coding Learning (CL) Training Coding Learning Method using the MITI 4.2.1 Manual (Moyers, Manual, & Ernst, 2014)	
Training Day 1	Training Day 2
<ul style="list-style-type: none"> • 6 hours of training • 1 instructor • 1 classroom • Large group format • Introductory information about MI, video clips, and demonstration • Introduction to MI concepts via behavior count codes <ul style="list-style-type: none"> • Includes instruction on how these codes are applicable to MI learning and MI as an intervention 	<ul style="list-style-type: none"> • 6 hours of training • 1 instructor • 1 classroom • Large group format • Introduction to MI concepts via Global codes • Question & Answer and Discussion • Coding Practice • Role play and discussion of practical application to clinical practice

In the current study the LS teaching method remains the same as in the Pecukonis et al (2016) study, while the new CL (Coding Learning) curriculum requires the same amount of instruction time but less demanding logistics and reduced educational resources and personnel costs. To assess MI LS and CL training effectiveness, a randomized controlled study design was implemented within a population of SW students. See Figure 1 for illustration of study design. Student MI knowledge and skills were assessed using an observational measure before training (T1), immediately after training (T2) and at follow up after a semester of learning-as-usual (T3). Participant satisfaction was evaluated post-training. Educational resources required for each training method were also calculated in terms of personnel hours, educational resources units such as classrooms and AV sets, and estimated running costs in US dollars. This study will test if either training method increases MI knowledge and skill, if either training group is

more satisfied with their training experience, and which training method is more resource efficient. In all, this study will examine whether using a coding based approach to teach beginning MI skills can increase feasibility of disseminating MI as an EBP within MSW program curricula.

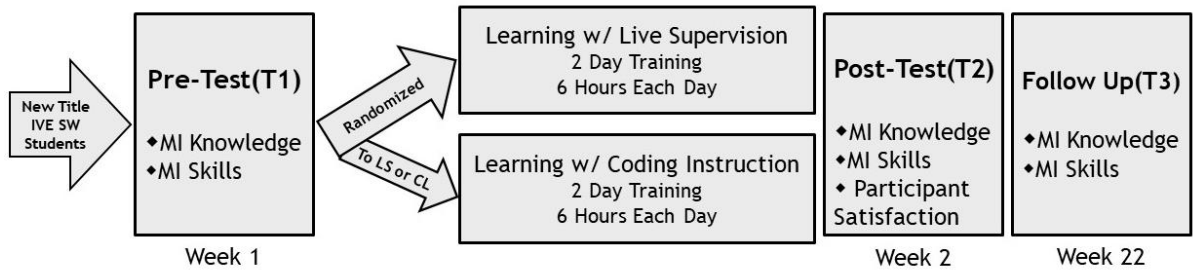


FIGURE 1: STUDY DESIGN.

CHAPTER TWO: TEACHING AND LEARNING MOTIVATIONAL INTERVIEWING

MI instruction has no standard, manualized and required training method (Miller & Rollnick, 2013). The lack of a standardized training method does not mean MI is simple to learn or teach, or that all training methods are effective (Miller & Moyers, 2006). MI training has been the subject of much quantitative and qualitative research; however, additional research is needed to ascertain the most effective and efficient methods (Madson, Loignon, & Lane, 2009). This chapter will provide a review of MI training literature and MI training studies relevant to the creation and implementation of the current study.

The design, facilitation, implementation, and impact of MI training ranges considerably by teaching approaches, length and intensity of training, time dedicated to practice, and follow up support and coaching (Barwick et al., 2012; Madson, Loignon, & Lane, 2009; Miller et al., 2004). This range and variety of variables complicates comparison of MI training study outcomes (Barwick et al., 2012; Madson, Loignon, & Lane, 2009). Evaluating effectiveness is further complicated due to the vast array of settings in which MI can be taught and implemented, and the number of studies that measure knowledge gain but not behavioral skill change of the practitioner. An observational measure is essential to demonstrating skill attainment in addition to knowledge gain, as research has demonstrated that self-report of skill acquisition is generally not related to actual demonstration of MI skills (Miller et al., 2004). Additionally, despite the availability of MI training research, an exhaustive literature search produced only four research studies where MI training was provided to SW

students within an academic institution (Hohman, Pierce, & Barnett, 2015; Pecukonis et al., 2016; Smith, Hohman, Wahab, & Manthey, 2017; Tennille, 2013). Of the four studies located, only two provided outcome results related to actual MI skill attainment demonstrated by social work students. (Hohman, Pierce, & Barnett, 2015; Pecukonis et al., 2016).

The following review of literature and prior research will begin broadly and then focus in specifically on the information available regarding teaching beginning MI skills to SW students. First, I will summarize what is known overall about teaching and learning MI. Then, research containing particular criteria of interest follows. The two research studies available on MI skill attainment in populations of social work (SW) students are then described in detail. Finally, conclusions and implications related to the current study are provided.

Learning Motivational Interviewing

The lack of a standardized training method has been purposeful. The developers of MI acknowledge the importance of flexibility in training--reflecting the spirit of MI as a whole (Miller and Rollnick, 2013). The spirit of MI refers to the “underlying set of mind and heart within which MI is practiced, including partnership, acceptance, compassion, and evocation” (p. 413). As in MI practice, in which the practitioner does not take the role of expert and partners with the client, MI experts do not demand that people train a specific way. In short, people can teach and learn MI as they feel best fits their circumstances. Instead, MI competent trainers share knowledge when solicited and support teachers and learners in knowing what may or may not work best in their particular setting under a variety of circumstances. If the learner is resistant or in

disbelief that MI could be effective, am MI consistent trainer with roll with the learner's resistance and model MI consistent communication styles in their teaching.

Nonetheless, MI does have core components which must be learned and can be assessed. Acknowledging the complexity of achieving competency in MI, Miller and Moyers (2006) provide a framework identifying eight core components for becoming MI competent. A competent MI practitioner must demonstrate:

1. An openness to collaboration with clients' own expertise
2. Proficiency in client-centered counseling, including accurate empathy
3. Recognition of key aspects of client speech that guide the practice of MI
4. Eliciting and strengthening client change talk
5. Rolling with resistance
6. Negotiating change plans
7. Consolidating client commitment
8. Switching flexibly between MI and other interventions.

The development of these skills does not necessarily occur in a pre-defined progression, but all are necessary for competent MI practice. Miller and Rollnick (2013) further specify learning tasks that correspond to these core skills:

1. Understanding the underlying spirit with which MI is practiced
2. Developing skill and comfort with reflective listening and client centered skills of asking open ended questions, affirming, reflecting, and summarizing (OARS)
3. Identifying change goals toward which to move
4. Exchanging information and provided advice with an MI style
5. Being able to recognize change talk and sustain talk
6. Evoking change talk
7. Responding to change talk in a way that strengthens it
8. Responding to sustain talk and discord in a way that does not amplify it
9. Developing hope and confidence
10. Timing and negotiating a change plan

Overall, skill acquisition in MI is an ongoing process, rather than a one-time learning event, as "MI is not a technique, but an integrated set of interviewing skills" (p. 334). Practice and feedback from experienced MI trainer or coach based on a trainee's observed MI skill use are essential to develop proficient MI skills (Miller & Rollnick,

2013). Gains in knowledge and beginner skills can be seen after short trainings (Miller et al., 2004) but continued performance feedback from an experienced MI trainer appears necessary to prevent drift (Dunn et al., 2016; Miller et al., 2004)

Teaching Motivational Interviewing

As previously indicated, comparison of MI training effectiveness is difficult due in part to the vast range of training characteristics, settings, and quality of research evaluating trainings. As a result, a review of all MI training literature is not within the scope of the current project. Instead, information from trainings with characteristics most applicable to the current study are briefly described below (See Table 2 for study descriptions and examples of some of the study characteristics and comparisons made in the study). Whereas this table offers a broad look at past MI training effectiveness studies, as a whole, it is followed by a comprehensive summary of the two studies meeting all search criteria (an MI training study specifically implemented for social work students in an academic setting, containing a measure of skill attainment). As a basis for comparison between prior investigations and the current study, characteristics of the current study are identified in the last column of the corresponding row of Table 2.

TABLE 2: *MI TRAINING STUDY CHARACTERISTIC CONSIDERATIONS.*

Characteristic/ Variable	Description/Range/Type	Current Study
Study Design	Studies range from RCT, Quasi-Experimental with control group, to simply pre-post, or just post training evaluation/satisfaction survey	RCT (w/ three time points pre, post, and follow up)
Students	<hr/> What kind of students? Ex: med, dental, psych, SW <hr/> What educational level? Ex: Bachelors, Masters, etc.? <hr/> What type of professionals? Ex: Nurse, Dentist, Social Work, ER Doc, etc.?	

TABLE 2 CONTINUED: *MI TRAINING STUDY CHARACTERISTIC CONSIDERATIONS.*

Study Sample	Practicing Professionals	<p>Working in what setting? Ex: Substance Abuse clinic, hospital, state agency In outpatient, inpatient, community based, in-home?</p> <p>Working with what type of clients? Families with children, individual, SES, diversity?</p> <p>Licensed? Unlicensed? Educational Level?</p>	BSW and MSW students who will be working with families
Instructor/Trainer /Educator	Knowledge of MI & Fidelity of MI Practice	How is this demonstrated? Ex: Observational Assessment of MI Skill (Coding via MITI or other tool?) or “Expert” Qualifications (via membership in the MINT or other experience)	Fidelity of Trainers to MI assessed via MITI 4.2.1 Coding of SCA interaction
	Trainer Characteristics Ex: Engaging, personable, responsive, etc.	How are they assessed? Ex: quality assurance means, or participant satisfaction surveys or course evaluations?	Participant satisfaction with trainer/training via post training evaluation forms
MI Use/ Desired Target Change Training Specified	Ranges from explicitly specific to more broad		Focus on changes in parenting behaviors related to child safety and well-being
	Specific Ex: Substance use cessation for SA clinicians or dental care adherence for dentist or dental technicians	Broad Ex: Social workers working with families/parents on behavioral change issues related to safety, permanency, and well-being of children	
Setting for Training/ Learning	As part of a requirement for undergrad or graduate student?	<p>Class course? Required? Course Segment? Elective? Training or Seminar? Graded? Internship or field placement? Ungraded?</p>	<p>MI Training was mandatory for new Title IV-E (child welfare) Social Work Students.</p> <p>Participation in research was voluntary.</p>
	<p>Training within a work setting?</p> <p>Post degree continuing education workshop or professional development training?</p>	<p>Voluntary participation? Participation or none?</p> <p>Mandated by work setting or certification requirements? Competency demonstrate required?</p> <p>Pass/Fail?</p>	
Theoretical Foundations	Range from studies not citing theoretical foundations for teaching methods to some literature providing theoretical background for MI as intervention		Trainings guided by a framework of adult learning and application of model of adult skill acquisition.

TABLE 2 CONTINUED: *MI TRAINING STUDY CHARACTERISTIC CONSIDERATIONS.*

Teaching Format/Training Design and Facilitation	Teaching formats vary from self-taught or online virtual courses to trainings with live supervision to a course with a range of teaching methods such as lecture, role play, coding, video and actual demonstration, readings, etc.	What is the percentage of presentation or passive learning and what type? Ex: Watching a video or listening to a presentation What is the percentage of experiential or active learning and what type? Ex: Live Supervision and/or coding transcripts	Teaching of MI skills through use of MITI 4.2 Coding Concepts (CL) & Live Supervision using SCAs (LS)
Length of Training	Trainings and learning experiences can range from an hour to days to weeks. Additionally, within studies, comparison conditions can range in length of time presenting a potential dosing issue.		Both conditions contain 12 hours of training over 2 days (6 hours each day), provided in 3 hour increments with an hour lunch break in-between.
Cost	Costs for MI training can range substantially based on several factors including but not limited to the facilities and technology used, SCA involvement, trainer availability/fees, and how many participants can be accommodated.	# of personnel resource hours, educational resource units, and estimated cost per training group is provided	
Follow up support/Feedback /Coaching	Trainings range from providing no follow up support, feedback, or coaching, to offering but not requiring, to providing 3+ months included with training condition		No structured follow up or coaching provided. “Teaching as Usual” via Field Instructor Feedback.
Outcomes/DVs	The outcomes/DV examined could be of knowledge attainment, behavioral skill assessment, willingness to learn MI, and others such as the percentage of time spent practitioner spends talking	Ex: Within behavioral skill alone, there are hundreds of DVs/ outcomes that could be examined, in dichotomous, categorical, or continuous form. For example, just within the MITI, there are 4 Global scales which evaluate the skills of Empathy, Partnership, Cultivating Change Talk, and Softening Sustain talk, and 10 behavior counts, which can then be used to create summary scores.	<ul style="list-style-type: none"> ◆MI Knowledge ◆Participant Satisfaction (aggregate and anonymous) ◆Skill Attainment: Ratio of Reflections to Questions Complex Reflections MIA Statements MINA Statements Relational Global (Partnership & Empathy)
Measures/Testing Methods	Observational	A variety of validated and reliable observational measures can/have been used.	<ul style="list-style-type: none"> ◆MI Skill gain will be assessed quantitatively by evaluating participant interaction with a SCA and rated using the MITI 4.2. ◆MI knowledge gain will be assessed using the MIKAT. ◆Satisfaction will be assessed via Post Workshop Evaluation Forms
	Self-Report	A range of self-report measures have been used. Additional questions include When and how were self-report	

TABLE 2 CONTINUED: *MI TRAINING STUDY CHARACTERISTIC CONSIDERATIONS.*

	A measures administered? What measures were used?	
Implications & Consideration of Client Outcomes....	Implications for training development and future research range based on all of the above factor. An additional consideration if practitioner MI skill correlates to actual client behavior change, as this data is most often not available.	None at this time.

Role of Instructor/Educator

The impact of instructor or trainer ability and characteristics on the experience and learning of trainees is an important and often overlooked consideration in research evaluating efficacy of MI as an intervention (Miller & Rollnick, 2014). The lack of consideration regarding the impact of a trainer’s qualifications, abilities, or characteristics might have on a training participant’s experience also appears to be true in research evaluating the efficacy of MI trainings. Studies will often report on the efficacy of the training, by implementing a measure of MI knowledge and/or skill, but are more likely to report on tangible aspects of the training such as curriculum, format or structure, and less likely to consider, evaluate or report the impact of trainer characteristics on knowledge and skill acquisition. For example, a study might provide a description of the teaching methods (i.e. lecture, role play, small group activity) but not provide a description of trainer characteristics and qualifications. Instructor characteristics and qualifications are an important part of the implicit curriculum and thus should be considered when evaluating the effectiveness of a teaching or training approach.

No reliable and valid instrument is currently available to assess MI teaching (Smith, Hohman, Wahab, & Manthey, 2017). Recognizing the importance of teacher qualities Smith and colleagues (2017) recently developed and tested a student-report measure of MI teaching quality called the Evaluation of Motivational Interviewing

Teaching (EMIT) Scale. The EMIT includes items evaluating MI consistent and inconsistent teaching practices of the instructor. Items included rating statements such as “Was quite critical of my MI practice mistakes” and “Tried to persuade us to use MI, even if we had doubts”. The authors identified two subscales representing MI-consistent and MI-inconsistent teaching practices. Additionally, quality does not necessarily indicate effective; it is unknown if EMIT measure results correlate with actual student knowledge or skill gain. Although the EMIT was not available at the time of this study, it suggests the important role of the teacher in training studies.

The role of the teacher in MI training matters, and variability within and between trainers is often not considered or measured. In the absence of a measure of teaching quality, in behavioral interventions, assessment of fidelity to the model is often used as a measure to evaluate if the intervention was delivered as intended. Within MI, if there is no assessment of fidelity, one cannot be sure that what was provided was the intervention that was intended is the (Miller & Rollnick, 2014). In MI research, fidelity of the provider is generally reported on a group level rather individual (Hall et al., 2015 from Dunn et al., 2016). Performance can also vary within provider. A recent study of 15 MI providers found that over a period of three years, within-provider variability in regards to MI proficient practice delivery was generally larger than between-provider variability in brief drug use interventions with actual patients in primary care clinics (Dunn et al., 2016). Thus, inconsistent MI performance has been documented even in cases where fidelity was initially demonstrated and continued practice and supervision was provided. In summary, implicit curriculum characteristics, such as trainer qualifications, are an

important consideration in addition to explicit curriculum considerations, such as teaching method and course content.

Role of the Learner/Study Sample

MI training has been more frequently implemented with professional staff in the field than with students within traditional academic settings (Hohman, Pierce, & Barnett, 2015; Madson, Loignon, & Lane, 2009). MI trainings for SW students are even less common. MI research has shown that people of all education levels can learn MI (Miller et al., 2004), though a great investment of resources and incentives may be necessary for participants with lower baseline skills (Moyers et al., 2007). Comparison of training approaches is challenging due to the paucity of populations with student samples, and because each academic setting likely differs in curriculum requirements and training design and facilitation. Two systematic literature reviews on MI training were located at the time of writing and one contained samples of students (Madson et al., 2009) and one did not (Barwick et al., 2012). Furthermore, the one that did contain students included mostly medical students and did not contain any samples of mental health graduate students (psychology, social work, or counseling).

Noting the dearth of available research on students, Madson and colleagues (2013) conducted a quasi-experimental study on teaching MI to undergraduate psychology students (n=83), evaluating three teaching approaches: a 1 hour MI lecture in a counseling theories course, a 1 week intensive MI course, or a 16 week extended MI course (Madson, Schumacher, Noble, & Bonnell, 2013). The students in the extended and intensive courses demonstrated greater increases in MI knowledge (as measured by the Motivational Interviewing Knowledge Assessment Test, MIKAT) confidence (as

measured by the Motivational Interviewing Self-Skill Assessment) and skills (as measured by the VASE-R) than those students in the lecture. There were no post-course differences in proficiency abilities between the extended and intensive course. These results indicate that MI skills could be learned and demonstrated by students with no outside practice experience in a relative short, intensive time period (Madson, Schumacher, Noble, & Bonnell, 2013). Measuring skills using the VASE-R, bachelor's level SW students also demonstrated significant MI skill gains over a semester long course using a variety of teaching methods (Hohman, Pierce, and Barnett, 2015).

Teaching method effectiveness can vary based on the experience of the student/learner. Educational level made a statistically significant difference in learning in a study comparing the effectiveness of video supervision to teleconference supervision (Carpenter et al., 2012). Video supervision had the most impact on MI skills for those with graduate degrees whereas teleconference supervision worked better for those without.

Teaching Format/Training Design and Facilitation

A vast array of MI training designs and facilitation techniques have been used by investigators. Training tools include self-study (Olmstead, Carroll, Canning-Ball, & Martino, 2011), online virtual-world platforms (Mitchell et al., 2011), coaching and feedback specific to the learner's performance (Croffoot, Krust Bray, Black, & Koeber, 2010) and live supervision (LS) using SCAs, (Pecukonis et al., 2016). Didactic instruction and experiential training methods, not CL or LS, are most commonly used-- typically in a workshop form, and often in combination (Barwick et al., 2012; Madson,

Loignon, & Lane, 2009). MI training primarily based on coding learning (CL) has not been previously used prior to the current study.

Live Supervision. MI trainers have rarely used live supervision (LS) to promote skill acquisition. Smith et al. (2012), an exception, explored the effectiveness of LS via teleconference supervision (TCS) vs video supervision with a group of substance abuse clinicians and found that LS was, generally, more efficacious. Teleconference supervision provided in-the-moment supervision, LS, via teleconference (TCS). Video supervision provided supervision post-interaction (not in-the-moment) based on video of the interaction. An additional analysis with the same data had indicated effectiveness of teaching design and facilitation could vary based on the experience level of the learner (Carpenter et al., 2012). Considering differences in experience level and characteristics of the learner, video supervision was the most effective teaching method for skill development with participants holding graduate degrees whereas TCS worked better for those without graduate degrees (Carpenter et al., 2012). In a sample of social work students, LS was found to be more effective than an online study course for teaching the skill of complex reflections, but no significant differences were found between groups in other areas of MI adherent and non-adherent behaviors over time (Pecukonis et al., 2016).

Standardized Client Actors/Simulation. Use of SCAs and simulation for training and evaluation in MI, and other psychosocial interventions in general, began to occur and develop more recently, despite having been used in the medical professions for some time (Baer et al., 2004). Use of SCAs and simulation is becoming more common, but not typical or standard practice. For example, five of 28 studies in the 2009 systematic review used SCAs in experiential learning activities (Madson et al., 2009). A

subsequent systematic review contained two of the five studies in the previous review, but no new studies with SCAs (Barwick et al., 2012).

Results indicate increases in MI skill from using SCAs as part of an experiential training design is possible. A sample of healthcare professionals who were randomly assigned to practice skills with either a SCA or a fellow trainee found that both groups demonstrated gains with no statistically significant difference in level of MI competence between groups (Lane, Hood & Rollnick, 2008). Use of SCAs in a RCT examining MI training found that while clinicians were able to demonstrate gains from training when interviewing a SCA, the responses of the actors “were not representative of how actual clients respond to MI”, and the actors “tended to reproduce the same script.” (Miller et al., 2004, p. 1060). The SCAs were also observed to be more difficult than typical clients and, as a result, the researcher cautioned that if the goal is to see how training impacts client response to clinicians, use of SCAs may not be optimal.

Implications of research and professional observation in the area of simulation indicate additional research on the use of SCAs for MI training and testing is needed to determine the circumstances under which SCAs are most effective and efficient. The need for additional research on the use of SCAs for child welfare worker trainer has also been documented (Bogo, Shlonsky, & Serbinkski, 2014). Use of SCAs for teaching via LS in a sample of social work students specializing in child welfare was more effective than teaching as usual only for the MI Skill of complex reflections (Pecukonis et al., 2016). This study is described in more detail in the next section.

Coding as a Teaching Technique. To date, to this writer’s knowledge, no training study has evaluated the effectiveness of learning to code using the MITI 4.2.1

(Moyers, Manual, & Ernst, 2014) as the primary mechanism to teaching beginning MI skills. Personal communication with others in the field of MI research also indicates no published research studies exist that have implemented and evaluated the effectiveness of learning MI via learning MITI coding. Hohman and colleagues (2015) used one week (~2.5 hours) of a fifteen-week course to teach bachelor level social work students about MITI coding concepts and practice. They note that the classroom setting allows for many strategies for providing feedback and they suggest the most efficient feedback approach “is to teach students basic coding skills so they have the ability to assess their own recorded interviews” (p. 295). Exploratory research is needed in this area due to the potential for a training method that offers ease of accessibility, efficiency of cost, and a low-risk learning environment for participants who are novice MI practitioners.

Cost

The cost and effort of MI training is a decision factor for many program administrators seeking to expand their evidence-based practices, particularly considering the cost of fidelity assurance and ongoing monitoring. Recognizing this concern, other investigators have endeavored to reduce the cost of MI training. A train-the-trainer model could be effective, where expert trainers provide initial trainings to develop a group of staff that can then provide subsequent trainings within an organization (Doran, Hohman, Koutsenok, 2011; Olmstead, Carroll, Canning-Ball, & Martino, 2011). In a study of training juvenile justice services (JJS) employees, budget restrictions altered plans to hire expert MI trainers, trainers who are members of the Motivational Interviewing Network of Trainers (MINT), to train all of the staff members. Instead of expert MI trainers providing all of the MI training for staff, an expert MI trainer trained

JJS employees who then trained the staff (Doran, Hohman, & Koutsenok, 2011). A train-the-trainer model was implemented, and findings indicated that pre to posttest MI knowledge (as measured by the Motivational Interviewing Knowledge and Attitudes Test) and skill gains (as measured by the Worker Responses Questionnaire) did not vary between the participants trained by employee trainers and expert trainers (Doran, Hohman, & Koutsenok, 2011). A quasi-experimental study sought to determine the cost and cost effectiveness of teaching clinicians MI through 3 different models of training: self-study, expert-led, or train-the-trainer format (Olmstead, Carroll, Canning-Ball, & Martino, 2011). The expert-led training was the most expensive yet most effective teaching method for producing clinicians that could meet MI performance standards at 12 week follow up (Olmstead, Carroll, Canning-Ball, & Martino, 2011). The train-the-trainer was the next most effective, and the self-study was the least effective (Olmstead, Carroll, Canning-Ball, & Martino, 2011), thus also demonstrating the important role of the trainer, and considerations of cost effectiveness.

Motivational Interviewing Skill Attainment in Social Work Students

Few studies examine MI training provided to SW students within an academic institution (Hohman, Pierce, & Barnett, 2015; Pecukonis et al., 2016; Smith, Hohman, Wahab, & Manthey, 2017; Tennille, 2013). Of the four studies located, only two provided outcome results related to actual MI skill attainment (Hohman, Pierce, & Barnett, 2015; Pecukonis et al., 2016). One study that provided MI training but did not measure participant MI skill attainment was implementation of a measurement tool to assess MI teaching (Smith, Hohman, Wahab, and Manthey, 2017). Another study focused on the feasibility of teaching an EBP in diads of SW students and SW field instructors

(Tennille, 2013) but did not report on measures of actual MI skill attainment of study participants. Of the MI training studies implemented in populations of SW students that did provide outcomes related to actual MI skill attainment, one evaluated a semester long course (Hohman, Pierce, & Barnett, 2015) and one evaluated a three day training (Pecukonis et al., 2016). Only one study was an RCT and used the Motivational Interviewing Treatment Integrity Coding (MITI) coding system as a quantitative observational measure of participant behavior change (Pecukonis et al., 2016), and only one had an indicator of trainer fidelity, via the Motivational Interviewing Network of Trainers (MINT) membership (Hohman, Pierce, & Barnett, 2015). Additional details are provided in the following two sections.

Motivational Interviewing Social Work Course

A quasi-experimental study conducted by Hohman, Pierce, and Barnett (2015) evaluated the effectiveness of a 15 week social work undergraduate MI course on student MI skill attainment. The course contained take-home work and 37.5 hours of class time. Teaching methods included lecture, discussion, real play (practice MI interactions where participants identify a target change behavior they are personally interested in rather than pretending to be a client and role playing a scenario), role-play, videos, demonstrations, and other exercises, including a week on MITI coding system content and practice (Hohman, Pierce, and Barnett, 2015). The sample size was 137 students clustered into four sections of the MI course over a two year time period. Fidelity was not specifically mentioned, but the study did indicate that both instructors were members of the Motivational Interviewing Network of Trainers (MINT) which currently requires submission and review of a trainer audio sample of MI practice to ensure MI competency

prior to admittance. Measures were student demographic data, the Video Assessment of Simulated Encounters (VASE-R), and the Helpful Responses Questionnaire (HRQ). Pre-test and post-test scores were analyzed for differences using paired t-tests (Hohman, Pierce, and Barnett, 2015).

Results demonstrated that students' overall scores increased in a statistically significantly manner for the HRQ and the VASE-R from pre to post-test (Hohman, Pierce, and Barnett, 2015). The HRQ measures empathy and reflective listening ability, with a total possible range of 6-30. The overall mean HRQ score improved to 22.07 from 7.08. The VASE-R indicated that at baseline, 35.6% of student responses provided answers that would illicit resistance in clients (confront, argue, warn, advise, or educate) and 30.7% of the responses were neutral or non-furthering, with 18.7% of the neutral being question asking. Only 16.4% of student answers were categorized as MI adherent or "correct" in nature (reflections/summaries) and only one student had an overall beginning proficiency score, as defined by the VASE-R, at baseline. After the training, analysis indicated student scores in MI skills of reflections, summaries, responding to resistance, eliciting change talk, and developing discrepancies all increased significantly. The percentage of students at or above beginning proficiency skill level at post-test ranged for each skill from 75% for eliciting change talk to 90% for summarizing. Eliciting change talk had the lowest number of students meeting beginning proficiency marks, indicating a potentially more advanced skill that is more difficult to acquire in early stages of learning, while summarizing can more easily be acquired in a variety of practice settings. Additionally, 82.1% of students met beginning proficiency level of

reflective listening: 81.5 % for responding to resistance and 83.3% for developing discrepancies (Hohman, Pierce, and Barnett, 2015).

In summary, this study demonstrated that a 15-week MI course statistically improved BSW students' MI skills over the course of a semester, as measured by the VASE-R and HRQ. A strength of the training identified by the authors was the ability to implement training activities in the classroom that cannot be easily implemented in the field, with emphasis on strategies for providing feedback to students. Teaching students basic coding skills so they can assess their own recorded interviews was highlighted as the best feedback approach. Peer feedback based on coding from live observation was also mentioned, and a third approach was having teachers provide feedback, though this was acknowledged as least feasible with large classes (Hohman, Pierce, and Barnett, 2015). Limitations identified were focused on the methodology of the research and included generalizability to other populations of learners, having instructors participate in data coding (though blinded to participant name), and a testing effect due to using measures as pretest and also in final exams.

This dissertation study is similar to the Hohman, Pierce, and Barnett study (hence "Hohman") in that the role of educator and student are similar (educators trained in MI teach MI skills to social work students) but the dissertation study differs in teaching/training design and facilitation, as well as research methods. Regarding differences in design and facilitation, Hohman provided over 37 hours of MI instruction to their students over the course of a semester, whereas the current study provides just 12 hours of instruction in two days. Some teaching methods are similar (this study and the current study both contain lecture, discussion, videos, & coding instruction). Hohman

did not provide “in-the-moment” supervision using SCAs, characteristic of the LS in the current study. Additionally, the Hohman study used a large classroom with one instructor in a graded course. The current study uses a typical classroom setting for CL, but there is also a small group, standardized patient setting learning experience for LS. The current study implemented training prior to the semester and it was not a for-credit course, therefore performance was not graded. Lastly, Hohman appeared to use a multitude of teaching methods and approaches over the course of the semester; whereas the current study indicates a primary approach of either live supervision or coding-based instruction.

Motivational Interviewing Training

Pecukonis and colleagues (2016) compared the teaching method of Live Supervision (LS) to an online training designed to be comparable to teaching as usual (TAU). Fifty-four SW students (BSW and MSW) were randomized to either the intervention (LS) or the control (TAU). The intervention group experienced one day of didactic training and two days of LS training, while the teaching as usual group (TAU) experienced one day of didactic training and a self-paced online training that was accessible for 48 hours in the same time period as the LS training. LS training is a manualized training that involves two steps: reviewing key MI concepts in large group sessions and then SCA interviews/interactions in small group (n=5) settings. The small group learning experiences are facilitated by MI trainers with the goal of shaping MI intervention strategies along the four stages of MI (engagement, focusing, evoking, and planning) via real time feedback to the student learner interacting with the SCA (aka live supervision). In the small group, each student takes a turn interacting one-on-one with a SCA. During this time, the student receives in-the-moment feedback from the trainer via

an earpiece. Following the one-on-one SCA interaction, each student receives feedback in the small group from his or her peers and the SCA. The TAU online training consisted of independent reading, review of PowerPoint Slides, and MI training video clips.

Fidelity was not measured and trainers were not members of the MINT. Their expertise and experience with MI training was described as “experienced social work clinical faculty in child welfare” who completed twice monthly MI trainings over a 2 year period with standardized client actors (SCAs) and actual clients (Pecukonis et al., 2016, p.489) All trainers had experience providing LS MI training to SW students prior to the training implementation (Pecukonis et al., 2016).

Study outcome measures included demographics, the General Self-Efficacy Scale (GSE) developed by Schwarzer and Jerusalem (1995), the Perceptions of Motivational Interviewing Scale developed by Cronk and colleges (2012), Training Satisfaction Surveys, and the MITI 3.1.1, developed by Moyers and colleagues (2010). The MITI has two components, global scores and behavior counts. Both the global scores and behavior counts were used to assess MI proficiency of study participants. Global scores (range from 1 to 5) are meant to capture an overall judgement about the dimension displayed by the worker. The globals in the MITI 3.1.1 include Direction, Empathy, Partnership, Collaboration, and Autonomy and Support. Behavior counts are tallies of specific behaviors. These counts occur from the start to the end of the coded segment and include behaviors such as questions and reflections (Moyers, Martin, Manuel, Miller, & Ernst, 2010).

Students were measured at four time points, over a period of five months. Students were measured prior to a one-day didactic training (T1), the day after the

didactic training (T2), the day after the two-day LS or TAU training (T3), and follow up four months post training, after the semester ended (T4). Only globals and not behavior counts were available at T1 (pre-test) for the MITI, an acknowledged study limitation (Pecukonis et al., 2016).

Groups did not differ across time in report of self-efficacy as measured by the GSE. Regarding perceptions of MI, both groups increased across time in their positive perception of MI; there were no statistically significant differences between the LS and TAU groups. The MITI observational measure of student skills indicated LS was found to be more effective than TAU for teaching the MI summary score of Percentage of Complex Reflections. Significant differences did not exist between groups and across time for MI summary score skills of Reflection to Question Ratio, Percentage MI Adherent, Percentage Open Questions and the Spirit Global (Pecukonis et al., 2016).

When examining the percentage of students in each group who met beginning proficiency level at T4, the LS group had more students who met beginning proficiency for Reflection to Question ratio (defined as 1 to 1.99) than the TAU group, to a statistically significant level. The LS group had more students in each group who met beginning proficiency levels as compared to the TAU group for Global MI Spirit (defined as 3.5), Percentage Open Questions (defined as 50% to 69%), Percentage MI Adherent (defined as 90% to 99%), and Empathy (defined as 3.5); however, these differences were not statistically significant (Pecukonis et al., 2016).

In summary, LS was more effective than TAU at teaching the skill of Complex Reflections. Trends across time were more positive for the LS group in other areas, but the results did not significantly differ from the TAU group. Strengths identified by the

authors include adding to the body of MI training literature by examining the effect of experiential training on the process of learning MI skills in a group of SW students. Pecukonis, et al., (2016) was the first study to implement a RCT with SCAs to assess MI skill attainment among SW students in child welfare. Limitations for this study included lack of a pre-test measure for MI skills other than empathy, a small sample size, no compliance indicator for TAU participants, and no standardized measure of fidelity across supervisors (Pecukonis et al., 2016).

The current study builds upon the results from the Pecukonis study. The current study is similar to the Pecukonis study in the areas of educator and student role (educators trained in MI teach MI skills to social work students) but differs in aspects of teaching/training design and facilitation. Regarding design and facilitation differences, Pecukonis and colleagues provided MI instruction over a period of three days, whereas the dissertation study provides 12 hours of instruction in two days to both study groups. Additionally, the prior study provided 6 hours of didactic instruction to all participants, then the LS group received 16 more hours of group MI instruction while the TAU group engaged in self-paced MI learning over a period of 48 available hours. Lastly, the Pecukonis study and dissertation study differ in learning settings: Pecukonis compared LS to an online TAU format, whereas in the current study, both groups receive equal hours of group training time, in LS and CL formats.

Summary and Implications

In conclusion, the most effective training methods for SW students to gain observable MI skills are unknown. The majority of the MI training research involves samples of practitioners rather than students, and there are only two studies with skill

attainment outcomes for populations of SW students. There have been mixed results on the use of SCAs and LS, with no conclusive evidence that the additional expense and logistics coordination results in additional MI skill attainment compared to less costly and less labor-intensive options. Additionally, no studies evaluated the use of coding as a primary method of instruction. A pair of observations arising from participating as Research Coordinator in Pecukonis et al (2016) led to the hypothesis that an initial MI training that breaks down complex skills into more concrete concepts, and provides more “rules” and structure initially may be beneficial for beginning MI learners. Observations of participants indicated that “context-free” features may have been helpful for learners who had little to no clinical experience with clients, such as new social work students. The benefits to MI clinical practice by learning an MI coding system was also observed. These observations arose from being trained as a research assistant to code data for the Pecukonis et al. (2016) study. Coding training provides a mechanism to understand and recognize crucial aspects of MI, thus providing an opportunity for skill building. Additional research on implementing and evaluating MI training methods with SW students is needed and the value of this research will be greater with the inclusion of factors related to cost, trainer, and training methodology, design, and facilitation. The current study builds upon the strengths, limitations and implications of the two studies related to teaching MI to SW students reviewed above, and relevant aspects of the broader MI training knowledge. Efforts to integrate the prior literature and research into the currently proposed study include methods related to training design and facilitation, implementation, and research design. Lastly, this study takes into consideration that

learning MI is a process and attempts to account for this theoretically and methodologically, as described further in Chapters 3 and 4.

CHAPTER THREE: THEORETICAL FOUNDATIONS

This chapter describes the theoretical approaches informing this study.

Theoretical foundations strengthen research design, implementation, and evaluation, and provide a structure for scientifically based information sharing and advancement of knowledge (Carpiano & Daley, 2006). A framework of adult learning is presented and then a five stage model of adult skill acquisition is outlined and applied. Respectively, these concepts operate along a continuum, with the scope decreasing as the logical connectedness and specificity increase (Carpiano & Daley, 2006). Adult learning and the model of adult skill acquisition are connected to the research study aim of examining the most effective teaching method for adult student learners to acquire MI skills. Effective teaching methods move through stages of adult skill acquisition sequentially, starting at the learner's current skill stage. The present study is informed by the observation that matching the teaching methods to the skill stage of the learner can result in increased learning of beginning MI skills over time.

Framework of Adult Learning

A framework for adult learning should be able to inform training of social work students who have an average age well into their 20s. A framework, which is broader than a theory, "...identifies a set of variables and the relations among them that are presumed to account for a set of phenomena" (Carpiano & Daley, 2006, p. 565). A framework does not provide explanations for outcomes, but organizes inquiry and structures theory development (Carpiano & Daley, 2006). Understanding what factors

shape adult learning can help guide the development and evaluation of social work MI training curricula.

Merriam and Bierema (2014) provide a framework for adult learning, identifying (1) the role of the *educator*, (2) the role of the *learner*, (3) the *process* of learning, (4) the *context* in which the learning occurs, and (5) the *design and facilitation* of learning by putting into practice theories and concepts via creation of learning experiences for diverse learners. Thus, the variables of *educator*, *learner*, *process*, *context*, and *design and facilitation* should all be valued and considered in development and evaluation of adult learning. The role of the educator in learning is often overlooked (Merriam & Bierema, 2014), especially when the accomplishments of the learner are focused on, as is often the case in the United States (Gitterman, 2004). This occurs in MI training research when student skill outcomes are measured, but there is no measure of trainer MI competence or qualifications (Miller & Rollnick, 2014). Additionally, the context is not always specifically described or considered, and the design and facilitation not adequately detailed. For example, while all teachers have theories that drive their teaching, they may or may not be able to explicitly identify or describe the theories (Tracey & Morrow, 2012), which then limits evaluation and use in implicit and explicit curriculums.

The current study addresses each aspect of the adult learning framework in several ways. First, training and measuring the *educators* for fidelity to the practice skills. Second, acknowledging the role of the *learners* as students, with minimal to no clinical experience and without prior MI training, which differs from professionals in the field. Third, by including measures of both knowledge gain and behavioral skill of the learner in an effort to evaluate the *process* of learning MI. Fourth, by planning and considering

context via implementation by using SCAs and specifying the physical learning environment. And finally, by implementing trainings *designed and facilitated* to be unique learning experiences based on two different teaching methods and concepts related to adult MI skill acquisition.

Model of Adult Skill Acquisition

Many researchers do not distinguish between the concepts of theories and models, and many scholars use the terms interchangeably, though they are not necessarily the same (Carpiano & Daley, 2006; Tracey & Morrow, 2012). Models are more specific and narrow in scope than theories and “are developed and used to make specific assumptions about a limited set of parameters and variables. These assumptions are then systematically explored and tested on a limited set of outcomes by a particular method or methods. A model may also draw upon several theories to explore a specific problem in a particular setting” (Carpiano & Daley, 2006, p. 565). The current study uses a five-stage model of adult skill acquisition to inform two different methods of teaching beginning MI skills to new/novice social worker students with limited to no practice experience.

Dreyfus (2004) articulates a five-stage model of adult skill acquisition, providing examples of learning through the model description. The stages are (1) Novice, (2) Advanced Beginner, (3) Competence, (4) Proficiency, and (5) Expertise. The learner moves from being a novice, where context-free features and rules for determining actions are necessary, to being an expert, where calculation is not necessary due to the expert’s ability to provide an immediate, intuitive, and appropriate situational response. A novice needs rules. One who is competent is engaged in critical thinking and solo situational decision making, yet a decision making process is still necessary. Within the model, an

expert is one who does not need to think through a decision making process, he or she is able to react immediately. The stages are illustrated in Figure 2.

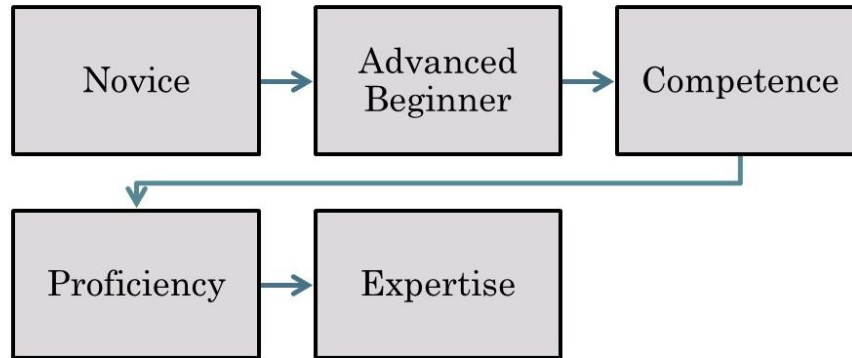


FIGURE 2: DREYFUS (2004) FIVE-STAGE MODEL OF ADULT SKILL ACQUISITION.

Given this model of adult skill acquisition and taking into account an adult learning framework, it can be argued that a teacher should (1) move through the stages of skill acquisition sequentially starting with Stage 1, and/or (2) accurately recognize the stage that the learner is in and begin teaching using methods appropriate for the identified stage, moving sequentially from that stage on to additional stages. Teaching students using methodologies not matched to their skill stage can result in frustration and inhibit the learning process.

Coding learning provides initial rules, guidelines, and context free (non-situational) features for the novice MI learning. Providing initial “rules” and guidelines is congruent with the first stage, Novice, in the Dreyfus (2004) model of adult skill acquisition. In this stage, the “instruction process begins with the instructor decomposing the task environment into context-free (non-situational) features that the beginner can recognize without the desired skill. The beginner is then given rules for determining actions on the basis of these features” (p. 177). The description of a Novice learner

further suggested the potential for a coding approach to teaching at this stage of skill development, since coding learning begins with decomposing the task into context free features and providing rules for determining actions based on these features. To transition to the next stage of skill acquisition, Advanced Beginner, the student needs not only the facts or rules but also an understanding of the context in which that information makes sense. Simply following rules produces poor real work performance (Dreyfus, 2004). As the learned starts to gain some experience and begins cope with real situations, the student begins to notice (or the teaching points out) meaningful additional aspects of the situation. After seeing a sufficient number of examples, the student learns to recognize these new aspects. Thus, the Advanced Beginner can refer to situational aspects based on experience, and also non-situational aspects as recognized by the Novice (Dreyfus, 2004). In the third stage, Competence, the student must decide for themselves in each situation what plan or perspective to adopt (Dreyfus, 2004). This stage is not consistent with coding learning, a learning in the competence stage would need more advanced instruction and experiential opportunities for decision making. Matching the teaching approach to the skill level of the learner was hypothesized to be beneficial in the initial MI skill acquisition stage for a novice practitioner/new SW student.

Live Supervision is not targeted for Novice learners as described in the Dreyfus (2004) Five-Stage model of adult learning because it does not begin with the instructor decomposing the task into context free, non-situational features. LS contains an immediate experiential learning component, with feedback and instructor from the supervisor. LS training maps onto the adult learning stages of Stage 2, Advanced

Beginner, and Stage 3, Competence. In Stage 2, the advanced beginner learner would use situational and non-situational information in the decision making process while coping with real situations. A key feature of students in the advanced beginner stage is, because a sense of what is most important in a particular situation is missing, performance becomes nerve wracking and exhausting. Working through this anxiety and exhaustion is the transition from Advanced Beginner Stage to Competence Stage, and this transition can be observed in the LS setting. Students in the Competence Stage must decide for themselves in each situation what plan or perspective to adopt, and this solo experiential learning feature is a key aspect of LS when the student and the SCA engage independently and the supervisor refrains from in-the-moment guidance for periods of time. The result in the Competence stage depends on the learner's choice.

Generally, if a student seeks the safety of the "rules", he or she will not get beyond competence level to proficiency or expertise. Teaching methods for these levels are beyond the scope of both CL and LS. For an illustration of how MI teaching and learning methods map on to the Dreyfus (2004) stages of adult skill acquisition, please see figure 3. In the current study, it is hypothesized that learning via LS will not be more effective than learning via CL for novice learners to gain beginning MI skills, due to the need for novice learners to have context free features and rules for determining actions.

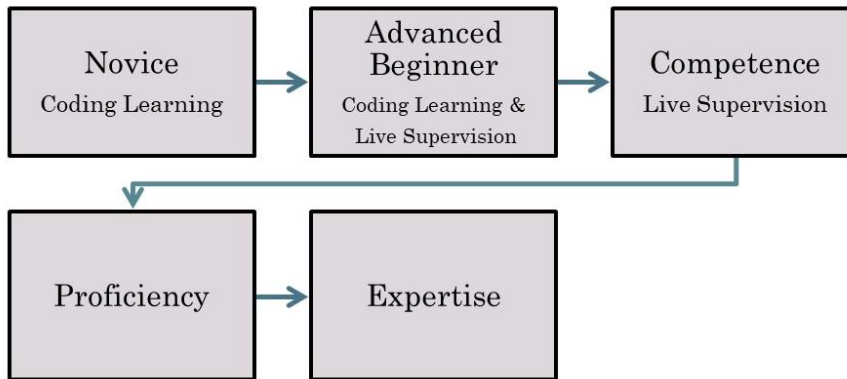


FIGURE 3: TEACHING METHODS MAPPED TO SKILL STAGE.

CHAPTER FOUR: METHODOLOGY

Study Purpose

The main goal of this dissertation project is to evaluate the effectiveness of two methodologically different MI training curriculums to teach beginning MI skills in a population of social work students. This proposal builds on implications for future research from a RCT of teaching MI using LS compared to a teaching as usual (TAU) approach (Pecukonis et al., 2016). The RCT findings indicated that the LS training method was more effective than TAU to teach students some meaningful MI skills (including using complex reflections and using reflections more than questions) in a short period of time, but statistical significance in proficiency between groups was not demonstrated for several key areas related to MI competency (Pecukonis et al., 2016).

Study Aim

Aim: Empirically evaluate MI teaching methods via a pilot randomized control trial examining the effectiveness of two different MI training conditions within a population of social work students.

Research Questions

- **Question 1: Motivational Interviewing Skill**
 - **Q1a:** Is there a significant difference in MI skill acquisition (as measured by the Motivational Interviewing Treatment Integrity Coding Manual, MITI, V. 4.2.1) between LS and CL groups in the areas of :
 1. Reflection to Question Ratio
 2. % Complex Reflections
 3. Relational Global (Empathy & Partnership)
 4. Total Number of MI Adherent Statements
 5. Total Number of MI Non-Adherent Statements
 - **Q1b:** Is there a significant change in MI skill acquisition (as measured by the MITI) within each group (LS & CL) and for all participants from T1-T2, T2-T3, and T1-T3 in the areas of:
 1. Reflection to Question Ratio
 2. % Complex Reflections
 3. Relational Global (Empathy & Partnership)
 4. Total Number of MI Adherent Statements
 5. Total Number of MI Non-Adherent Statements
- **Question 2: Motivational Interviewing Knowledge and Attitudes**
 - **Q2a:** Is there a significant difference in MI knowledge and attitudes (as measured by the Motivational Interviewing Knowledge and Attitudes Test, MIKAT) between LS and CL groups?

- **Q2b:** Is there a significant change in MI knowledge and attitudes (as measured by the MIKAT) within each group (LS & CL) and for all participants from T1-T2, T2-T3, and T1-T3?
- **Question 3:** Participant Satisfaction with Learning Experience
 - **Q3:** Is there a difference between MI training groups (LS & CL) in reported participant satisfaction ratings (as measured by program training evaluation form) at the conclusion of the training?
- **Question 4:** Educational Resource Efficiency
 - **Q4:** Is either training approach more efficient in transferring MI knowledge and teaching MI skills taking into consideration educational resources required per training group (~20 students) and effectiveness of training approach as determined by results of Q1 & Q2?

Sample

Participants were social work students (BSW and MSW) entering a Title IV-E program in the Fall of 2016 at a large school of social work situated within an urban, Eastern US city. The Title IV-E program provides specialized training for social work students, funded through federal Title IV-E, to serve families and children within a public child welfare setting post-graduation. Recruitment occurred after receiving IRB approval. Title IV-E social work students who had been identified as potential participants were recruited following a modified Dillman (2000) approach. Students were first sent pre-notice letters, then recruitment letters and emails were sent, and then potential participants were called via telephone.

Eligibility criteria for participants included being in the Title IV-E program through the university study site and having a field placement with families and children. Exclusion criteria included being under the age of 18, lacking proficiency in the English language to the level of being able to complete a survey in English unassisted, and the student previously participated in the MI training through their educational programming, for example Title IV-E students in their second year of the Title IV-E program.

An a priori power analysis was conducted using GPower 3.1 (Faul, Erdfelder, Lang, & Buchner, 2007) to calculate the minimum number of participants required. To reach .8 power to detect a statistically significant difference in MI skill gain at a level of $p < .05$ using a large effect size (Cohen's $d = .73$; $f = .37$), a total sample size of 14 is needed to power a repeated measures ANOVA with two groups and three data collection points. An a priori analysis indicates a total sample size of 18 would be needed to adequately power a repeated measures ANOVA with two groups and two data collection points. The effect size is based upon a calculation from a prior MI training study (Moyer et al., 2008) reporting a large effect size (Cohen's $d = .73$; $f = .37$) within a group of practitioners. The goal was to recruit 40 participants to account for attrition and maintain a conservative estimate of medium effect size due to the population being students rather than practitioners, and estimating 30% attrition over the five months of the study; however, the initial recruitment goal was not met, and only one participant was lost from T1 to T3. An IRB modification was submitted and approved to re-recruit from the pool of students who did not respond to the initial recruitment requests or had responded by saying they would like to participate but were unavailable during the T2 time period. This modification yielded only one additional participant. Overall, total sample size was 17,

with participation at each time point as follows: $n=17$ (T1), $n=14$ (T2), and $n=16$ (T3). Sample size and power issues are a noted limitation of this study.

Research Design & Data Collection

The research implementation employed a true experimental design with participants being randomized to training conditions, as previously illustrated in Figure 1 Chapter 1, replicated for reference below. Measurements were taken at three time points: Time 1 (T1) occurred prior to implementation of trainings, Time 2 (T2) occurred within one-week post training, and Time 3 (T3) was a follow-up measure five months-post implementation. The two training conditions implemented were Live Supervision Training (LS) and Training via Coding Learning (CL).

Procedures

The following section describes the training conditions, timeline of study implementation, study measures, and study measure coding process. The main difference between LS and CL is LS uses an experiential learning teaching approach, using SCAs, in-the-moment supervision, and small group instruction as the core teaching method and CL uses a traditional classroom setting, larger group instruction, and the MITI manual to explain important MI concepts as the foundation for teaching knowledge and skills. Both trainings included 12 hours of training time, implemented in 3 hours segments over a period of two days (6 hours of training each day, with lunch provided mid-day). Both training curricula were based on prior research, peer-reviewed published literature, expert consultation, and teaching experience of the professionals involved. SCAs in simulation settings were used for teaching in the LS condition and were used for testing/assessment for both conditions. SCAs were trained by the researchers in addition to simulation lab

protocol, and all SCAs engaged in the same standardized scenario. MITI coding instruction was used for teaching in the CL group and MITI coding was used for testing/assessment for both conditions, as audio tapes of the SCA encounters from participants scored by research assistant coders blinded to participants' training condition using the MITI 4.2.1 as the scoring/coding system.

Live Supervision Training. The LS training consisted of large group didactic instruction on Day 1, for a total of 6 hours. Day 2, also 6-hours long, consisted of students engaging in a small group format and included a session with a standardized client and direct intervention and feedback from a supervisor about the student's use of MI. Live supervision included use of a camcorder and audio equipment to allow the supervisor to observe and give live feedback in real time as the student engages in experiential learning. The audio visual equipment also provides an opportunity for other students to watch and learn from their peers.

Coding Learning Training. The CL training consists of learning coding using the MITI 4.2.1 Manual (Moyers, Manual, & Ernst, 2014) as the primary source of instruction. Coding means labeling worker utterances with behavior codes and also providing overall ratings in the areas of Partnership and Empathy (the globals) for the encounter. Instruction included introductory information about MI as an intervention and video clips and demonstrations of MI not exceeding 1.5 hours. Then, learning of MI coding concepts including behavior counts and globals occurred, using the manual in combination with participant Q & A and discussion, use of video clips via MI training DVDS and open source audio tapes and transcripts for MITI 4.2.1 training (available

from the University of New Mexico Center on Alcoholism, Substance Abuse, and Addictions website at <http://casaa.unm.edu/codinginst.html>.

Positive reinforcement was provided for correct answers. Incorrect answers were corrected or ignored, with increasing specificity required of the students by the instructor as training time passed. The 6+ hours of coding learning occurred over a period of two days, with the overall training structured in time blocks equivalent to LS. Finally, role play and wrap up with discussion of practical applicability to clinical practice occurred for one hour during the final segment of training on Day 2. A summary of key training features can be viewed in Table 1 in Chapter 1 and additional clarification of how both coding and SCAs are used in the current study can be viewed in Table 3.

TABLE 3: *DESCRIPTION OF KEY STUDY CONCEPTS.*

Concepts	Description
What is the MITI?	The MITI is the Motivational Interviewing Treatment Integrity Coding Manual, Version 4.2.1 (Moyers, Manual, & Ernst, 2014). The MITI is a behavioral coding system that indicates how well someone is using MI. It evaluates component processes within MI and it provides information that can be used develop increased proficiency in MI. To evaluate MI practice using the MITI, an identified change goal must be specified, though some elements (for example engagement skills) may be evaluated without a change goal (Moyers, Manual, & Ernst, 2014).
How is the MITI used in this study?	The MITI is used for both <i>teaching</i> and <i>testing</i> in this study. <ul style="list-style-type: none"> ◆For <i>teaching</i> purposes, the MITI manual is used to teach participants in the Coding Learning (CL) group about core concepts in MI. ◆For <i>testing</i> purposes, the MITI is used as a measure to code audio recordings of all participants (CL and LS) to examine MI skill.
How are Standardized Client Actors (SCAs) used in this study?	SCAs are used in for both <i>teaching</i> and <i>testing</i> in this study. <ul style="list-style-type: none"> ◆For <i>teaching</i> purposes, the SCAs are used in small group format with participants in the Live Supervision (LS) group for experiential activity purposes. ◆For <i>testing</i> purposes, SCAs are used for 20-30 minute simulation encounters with all participants (CL and LS). The simulated

TABLE 2 CONTINUED: *DESCRIPTION OF KEY STUDY CONCEPTS.*

encounters will be recorded and the audio will be coded using the MITI.

Timeline. Recruitment began in July 2016 after IRB approval, and continued through August 16th, 2016. Students received compensation for data collection, a parking voucher, and meals on the days of training. On August 17, 2016, participants engaged in a pre-test (T1) by completing a survey and a recorded SCA interview. Prior to participation, students were reminded of research procedures and confirmed consent. Students were then randomized to either LS or CL training condition and participated in the trainings on site on August 18th and 19th. Participants completed their post-test (T2) survey and SCA interview by August 26th, within one week of completing the MI training. Participants then engaged in learning as usual over the course of the fall 2016 school semester, and completed the follow-up (T3) survey and SCA interview in January of 2017. Post data collection, SCA interviews were coded by trained coders blind to the study time point and group assignment of the participant. Finally, data were merged, cleaned, and analyzed. Results will be presented and disseminated within the SSW and broader academic and research communities as appropriate.

Measures

Study measures captured quantitative self-report and observational indicators of MI knowledge, and MI skill. MI knowledge was assessed via self-report using surveys, administered online via Qualtrics (a web-based survey software program). MI skill was assessed using behavioral observation via coding of participants' audio recorded interactions of SCA simulation encounters to assess for MI skill level using the MITI

4.2.1. These simulation encounters were implemented at T1, T2, and T3 to collect data as

a measure of MI skill level for all study participants. All tapes were coded using the MITI after data collection by trained coders blinded to study time point and group assignment. An anonymous satisfaction survey implemented post training examined differing levels of satisfaction between training groups. Lastly, educational resource efficacy was calculated using three different units of measurement: educational resource units, personnel hours, and cost in US dollars. Demographic data were also gathered. Additional measure details are described below.

Self-Report Measures

Demographics. Demographic variables collected at T1 include age in years, race/ethnicity, gender, relationship status, child welfare agency work status, years of prior human service work, years of prior volunteer work, prior experience or knowledge of MI, and type of undergraduate degree (BSW or other). Hours of additional MI experience or training (outside of training implementation) were collected at T3.

Participant Training Evaluation/ Satisfaction Survey. A workshop evaluation form was administered by SW program coordinators and completed anonymously by participants after training implementation, at T2. The form contains 13 items related to training quality and experience (e. g. Workshop activities enhanced my learning) with 5 response options ranging from strongly agree to strongly disagree. The form has four optional open-ended questions.

Motivational Interviewing Knowledge and Attitudes. The Motivational Interviewing Knowledge and Attitudes Test, MIKAT (Leffingwell, 2006) measures MI knowledge gain and belief/attitude change at pre-test (T1), post-test (T2) and five months follow-up (T3). The MIKAT contains 15 questions with total scores ranging from 0-29.

Higher scores indicate higher MI knowledge and MI adherent attitude/beliefs. For the current study, language in the measure is adapted for use with social workers. For example “Substance users must accept their problem...before they can get help” was changed to “Clients must accept their problem....” and “Therapists expectancies for their client’s abilities to change...” was changed to “ Social Workers’ expectancies for their client’s abilities change...”

The original MIKAT was found to be reliable and valid in the initial study (Leffingwell, 2006) though no follow-up studies have been published by the original author. Other researchers have used the MIKAT with positive results. Doran, Hohman, and Koutsenok (2011) found the MIKAT demonstrated good internal consistency ($\alpha = .84$) in a training study sample of 1, 552 CA Division of Juvenile Justice system employees. Additionally, Madson and colleagues (2013) used the MIKAT in a sample of 83 undergraduate psychology students, reporting internal consistency within the sample as adequate ($\alpha = .72$).

Regarding use of the measure with language adapted, Simon and Ward (2014) used the MIKAT for academic advisors working with students. The study contained three time points. Cronbach’s alpha ranged from .45-.68, being below acceptable range. Parilla (2016) used the MIKAT with language adapted for clinicians working with troubled adolescents and found it to be valid and reliable. Parilla (2016) also included a review of two additional studies, though noted both should be interpreted with caution due to small sample size. Manthey (2013) used an adapted version and found it was an effective training measure, and Dear (2014) found results demonstrated low validity and reliability (Parilla, 2016). In conclusion, the literature indicates mixed results for use as an adapted

measure but given the limited options available, the potentials benefits, ease of use, and accessibility the MIKAT was determined to be the best fit for the current study.

Observational Measures

Motivational Interviewing Skill: MITI. MI skills were measured using the Motivational Treatment Integrity coding system, the most commonly used tool to evaluate the fidelity of MI. MITI 4.2.1 (Moyers, Manuel, & Ernst, 2014) the most recent version, was used at pre-test (T1), post-test (T2) and five months follow-up (T3). Initial testing of this version indicates it to be a reliable and valid measure of MI skill demonstration (Moyers, Rowell, Manuel, Ernst & Houck, 2016). The MITI uses *behavior counts*, tallied for the duration of a 20 minute, randomly selected portion of the audio, and, also, *globals* which are given based on an overall impression of the entire interaction. In the MITI, worker utterances are coded and client utterances are not. The MITI is not an exhaustive coding scheme, meaning at times there are worker utterances that do not receive a code. See Figure 4, adapted from Moyers, Rowell, Manuel, Ernst and Houck (2016) for a list and brief description of codes used in the current study.

MITI Code	Brief Description
Globals: One score given for the overall interaction, ranging from 1-5 on a Likert scale	
Partnership (P)	Conveys an understanding that expertise and wisdom about change reside mostly within the client.
Empathy (E)	Understands or makes an effort to grasp the client's perspective and experience.
Behavior Counts: Tallied for the entire interaction, with one summary score then calculated, as indicated below	
Questions (Q)	Questions (open or closed).
Simple Reflection (SR)	Reflects a client's statement with little or no added meaning or emphasis.
Complex Reflection (CR)	Reflects a client's statement with added meaning or emphasis.
Affirm (AF)	States something positive about the client's strengths, efforts, intentions, or worth.

FIGURE 4: MITI CODE DESCRIPTIONS FROM MOYERS, ROWELL, MANUEL, ERNST & HOUCK (2016)

Emphasize Autonomy (EA)	Highlights a client’s sense of control, freedom of choice, personal autonomy, ability, and obligation about change.
Seek Collaboration (Seek)	Attempts to share power or acknowledge the expertise of the client.
Persuade (Per)	Overt attempts to change a client’s opinion, attitudes, or behaviors using tools such as logic, compelling arguments, self-disclosure, facts, biased information, advice, suggestions, tips, opinions, or solutions to problems.
Confront (C)	Directly and unambiguously disagreeing, arguing, correcting, shaming, blaming, criticizing, labeling, warning, moralizing, ridiculing, or questioning a client’s honesty.
Summary Scores	
Total MI Non-Adherent (MINA)	$MINA = (\text{total Per}) + (\text{total C})$
Total MI-Adherent (MIA)	$MIA = (\text{total EA}) + (\text{total Seek}) + (\text{total AF})$
Reflection to Question Ratio (R:Q)	$R:Q = (\text{total reflection}) / (\text{total questions})$
Percent Complex Reflections (%CR)	$\%CR = CR / (CR + SR)$
Relational	$Relational = [(\text{Partnership}) + (\text{Empathy})] / 2$
Technical	$Technical = [(CCT) + (SST)] / 2$

FIGURE 4 CONTINUED: MITI CODE DESCRIPTIONS FROM MOYERS, ROWELL, MANUEL, ERNST & HOUCK (2016)

SCA & Simulation Testing. The MITI coding scheme was used to code an audio recording of participants implementing MI skills with a SCA in a simulation lab setting. All SCAs were trained by a researcher and/or the simulation lab on the testing scenario. There were some issues with SCA training and these are further detailed in the limitations section below. The target behavior was different for each of the three testing scenarios. The first testing scenario was created by a trainer in the Title IV-E program.. The second testing scenario was based upon the first but with updated information and a different target behavior. The third testing scenario was refined from a scenario previously used by the Title IV-E program to sharpen the area of focus for target change behavior change.

Coding Protocol. The study used the following scores: Reflection to Question Ratio (R:Q), Percent Complex Reflections (%CR), Total MI Adherent statements (MIA), Total MI Non-Adherent Statements (MINA) and Relational Global. Total MI-Adherent

Statements (MIAs) is calculated by adding the number of seeking collaboration, affirming, and emphasizing autonomy utterances. There is no ratio summary score for MIAs, nor suggested competency thresholds within the MITI. The number of MIAs in an MI interaction is one piece of an indicator of MI adherence, and should be examined within context of the interaction. Generally, for those who are learning MI, increased numbers of MIAs would indicate increased learning and skill in MI, though there are instances when this is not the case (e.g., if a practitioner uses MIAs not relevant to what the client is saying, or is “cheerleading” and perceived as not genuine or even placating to the client). Additionally, length of interaction impacts opportunity to generate MIA counts, so tapes less than 20 minutes must also be considered with caution compared to tapes of 20 minutes. Despite these limitations, MIAs were examined in this study as a measure of MI skill learning.

Total MI Non-Adherent Statements (MINAs) is calculated by adding the number of persuades and confronts. As with MIAs, there is no summary score or suggested competency threshold for MINAs and the number of MINAs in an MI interaction is only one part of an indicator of MI Skill, and should be examined within context of the interaction. As trainers of new MI learners, we would want our students’ MINA counts to decrease, eventually having few to no MINAs in an interaction. As a behavioral code, length of interaction can also impact the counts for this. Despite these limitations, MINAs were examined in this study as a measure of MI skill learning.

Data on participants’ use of MI skill was collected via recording a simulated encounter with each participant and a SCA at T1, T2, and T3. The audio recordings were then scored, also called coded, by research assistants trained to code audio recordings of

simulated encounters to assess MI skill use using the measurement tool of the MITI 4.2.1. Research assistants trained to code using the MITI are often called coders. Coders participated in over 40 hours of training led by the study project manager to learn to code MI skill using the MITI 4.2.1. Coders were blinded to subject's training condition and the study time point. Participant audio tapes from T1, T2, and T3 were randomly assigned to coders, and 20% of the tapes were randomly selected to be double-coded for inter-rater reliability assessment. The double-coded tapes were staggered into coding assignments, with higher numbers of double coded tapes earlier on in the coding process in order to assess for and correct any identifiable issues with coding. Double coded tapes were reviewed in coding practice training weekly with coders; once a tape was coded, the codes were entered into the data bank to be used for study analyses purposes and not changed. Codes were reviewed for training, reliability and quality assurance purposes.

Reliability of the MITI is determined based on a 20 minute randomly selected segment of audio. SCA interactions for assessment purposes were designed to be between 20 and 30 minutes in lengths. Despite this, many participants completed or ended their interviews before 20 minutes was up. In all, there were 47 tapes to be coded, ranging in length from 4 minutes 32 seconds to 30 minutes 12 seconds. Twenty-two of the tapes were less than 20 minutes and therefore the coding segment was not randomized and the entire audio was coded. When tapes were not at least 20 minutes in length, the tapes were still coded using the MITI: this limitation was noted due to being a potential threat to validity of MITI coding. The tapes were evenly distributed across time point, but not evenly distributed across group at T2 and T3. The shorter tapes were predominately present in the coding group at T2, and only in the coding group at T3. To assess impact

on results, tapes were grouped by length (20 minutes and over, n=24, and under 20 minutes, n=23) and independent t-tests were conducted to examine differences for each MI skill area. Univariate analysis showed mean scores were slightly higher for the over 20 minute tape group. Bivariate analysis detected no significant difference between the tapes under 20 minutes and the tapes 20 minutes and over.

Coding Outcomes. Inter-rater reliability between the two coders was assessed via calculating intraclass correlations (Hallgren, 2012; Mandrekar, 2011) for the double coded tapes. Reliability estimates were guided by Cicchetti (1994), also used in prior MI training studies (Miller et al., 2008; Pecukonis et al., 2016). Intraclass correlations (ICCs) were first calculated on all 10 double coded tapes, and then on a set of 7 double-coded tapes with three outlier tapes excluded from analyses. Outlier tapes were identified as those whose coding circumstances were more challenging than typical, for example difficulty with tone perception and utterance parsing problems, and thus resulted in atypical coding issues compared to the rest of the tapes. Reliability estimates ranged from poor to excellent with all ten tapes and with the outliers removed. Table 4 provides the complete intraclass correlation values for the study.

TABLE 4: *CODER INTERRATER RELIABILITY.*

Intraclass Correlations		
MITI Skill Measure	All double coded tapes (n=10)	Outlier tapes removed (n=7)
Partnership	.41	.58
Empathy	.85	.95
MINA	.54	.75
MIA	.70	.90
Questions	.85	.95
SR	-.21	-.10
CR	.47	.66

Cicchetti (1994) reliability estimates:

< .40 is Poor; .40- .59 is Fair;
 .60 to .74 is Good; .75 to 1.0 is Excellent

Fidelity of Supervisors

Trainers participated in a MI fidelity evaluation consisting of a SCA encounter in the same simulation lab used for participants in the research study. The testing scenario was created by a third party contractor so no trainer would have more prior in-depth knowledge than others. Due to an issue with the simulation lab, one of the encounters was not recorded and this was not revealed to the researcher until a later date. At that time, the interview was rescheduled on two additional occasions by the coding lab, and the testing scenario was provided by the coding lab, with a different target behavior and set of presenting problems.

Audio recordings were then coded using the MITI 4.2.1 by a contracted third party individual and results were provided without identifying information available as per research protocol agreement developed with supervisors and contracted coder. Trainers were provided with results in sealed envelopes (from the contracted coder) so each individual trainer was aware of his or her fidelity scores. Results of global summary fidelity scores are indicated in Table 5.

TABLE 5: GLOBAL FIDELITY ASSESSMENT OF MI TRAINERS.

Supervisor Audio Recording	Partnership	Empathy	Relational Competence Threshold
1	3	4	Met
2	3	4	Met
3	4	4	Met
4	4	4	Met
5	3	3	Not Met

Note: Global scores range from 1-5 on a Likert Scale. The Relational competence threshold is 3.5 for fair/competent, 4 is good/proficient

Results of trainer behavior count summary scores can be viewed in Table 6

TABLE 6: BEHAVIOR COUNT FIDELITY ASSESSMENT OF MI TRAINERS.

Supervisor Audio Recording	Questions	Simple Reflections	Complex Reflections	R:Q Competence Threshold	% CR Competence Threshold	MI Non Adherent (MINA)	M Adherent (MIA)
1	38	12	12	Not Met	Met	0	8
2	19	16	13	Met	Met	0	4
3	19	7	15	Met	Met	0	6
4	26	21	15	Met	Met	0	6
5	23	22	8	Met	Not Met	4	17

Note: R:Q = total reflections/total questions (1:1 is fair/competent, 2:1 is good/proficient) and %CR = CR/SR+CR (40% is fair, 50% is good)

Analyses

Univariate, bivariate, and multivariate analyses were used to examine data and all statistical analyses were conducted with SPSS version 24. For all bivariate and multivariate analyses, a significance value of .05 was used. Given the small sample size, graphs were also used to visually examine data trends (Gellman & Hill, 2007).

Frequencies, mean scores and independent *t*-tests were used to assess demographic and baseline skill differences between the LS and the CL groups prior to training and to assess if there was a difference in exposure to MI learning content outside of the study training between T1 and T3. The following section describes methods of analyses for each research question.

Questions 1 & 2. MI knowledge and MI skill change was assessed using graphs, means, paired *t*-tests, and a two way-repeated measures ANOVA. Graphs were used to visually examine data trends and compare MI knowledge and skill gain between groups (Gellman & Hill, 2007). Graphs and means were used to examine results from the practical perspective of student achievement (i.e. average grade point increases) in addition to significance testing. For example, faculty do not typically run an analysis to assess students for significant skill acquisition from the start of the semester to the end.

Faculty, generally, want to know whether a student performed better on an evaluation of skill or knowledge at the end of the semester as opposed to the start of the semester.

Prior research used *t*-tests to evaluate MI learning outcomes in a population of social workers (Hohman, Pierce, and Barnett, 2015). *T*-tests can reliably detect differences between groups in sample sizes as small as 10, given a large effect size (Kraemer & Blasey, 2016). Due to increased risk of Type 1 error rate from running multiple *t*-tests (Field, 2009), data were also analyzed using a two-way repeated measures ANOVA.

Data from post-test (T2) were not included in the ANOVA for several reasons. First, ANOVAs have limited capacity to deal with unequal time spacing between points ((Kahn & Schnieder, 2013). Second, unlike MLM or another methods, ANOVA requires data for all time points, so participants without data at T2 would need to be dropped, reducing the sample size to 12 (Kahn & Schnieder, 2013; Misangyi, Lepine, Algina, & Goeddeke, 2006). Not including T2 increases the sample size by over 20%, despite losing post-test data. Third, we are most interested in how the groups' knowledge and skill changed over time, so analyzing data from T1-T3 is sufficient for this purpose. T2 data is informative but not imperative to our desire to observe how students' knowledge and skills changed over time.

Questions 3 & 4. Participant satisfaction between groups was assessed using a test of proportions for each item on the post-training evaluation measure and comparison of overall endorsed group satisfaction percentage rating. Educational resource efficiency was calculated using three units of measurements: approximate cost in US dollars, personnel resource hours, and educational resource units. Number of personnel resources

hours is the most generalizable and was selected for its comparability to other universities and training sites. For example, dollar amount cost of SCAs or classroom space in an urban east coast city is likely to differ from a west coast city, or a more rural or suburban area. To calculate the approximate cost in dollars of a trainer, an hourly rate for a full-time staff member, an adjunct instructor, and a CEU trainer were averaged $(\$40.87+100+\$118.75)/3$. Again, the cost of a personnel hour would vary between educational institutions and within educational institutions, depending on the pay scale of the training provider. Educational resource units are categorized as resources needed within the educational setting to operate the training. Educational resource units in the study include supervisors/trainers, classrooms, SCAs, and 2 different types of audio visual technology sets which include computers, projectors, speakers or computers, projects, speakers, microphones, video cameras, and earpieces. Generalizable information and units of measurement are most useful and practically applicable for considering cost effectiveness within individualized training settings, thus number of personnel resource hours is emphasized for comparability purposes.

CHAPTER FIVE: RESULTS

Demographics

The research participants were primarily female (76.5%), with no participant identifying as transgender, ranging in age from 22 to 44 years ($M=29.29$, $SD=6.24$), and there was diversity among racial/ethnic descriptors. The largest portion identified as White or Caucasian (41.2%), followed by Black or African American (35.3%), Hispanic or Latino/a (11.8%), Asian (5.9%), or Black & Hispanic or Latina (5.9%). The majority (64.7%) had never been married. Academic level was almost evenly represented in thirds among BSW students (35.3%), Foundation year MSW students (29.4%), and Advanced year MSW students (35.3%). Overall, the study population had very little prior human service work experience, with the mean years of paid or volunteer service work being less than 1.5. Every research participant was in a field placement in a local county child welfare agency within the Maryland Department of Human Services from T1-T3.

Additional details on participant demographics can be seen in Table 7.

TABLE 7: PARTICIPANT DEMOGRAPHICS

Variable	All Participants (<i>n</i> =17)		Live Supervision (<i>n</i> =9)		Coding Learning (<i>n</i> =8)	
	<i>n</i> or <i>M</i>	% or <i>sd</i>	<i>n</i> or <i>M</i>	% or <i>sd</i>	<i>n</i> or <i>M</i>	% or <i>sd</i>
Age in Years	29.29	6.24	30	5.1	28.5	7.6
Gender						
Male	4	23.5%	3	33.3%	1	12.5%
Female	13	76.5%	6	66.7%	7	87.5%
Race/Ethnicity						
White	7	41.2%	3	33.3%	4	50%
Nonwhite	10	58.8%	6	66.6%	4	50%
Black or African American	6	35.3%	4	44.4%	2	25%
Hispanic or Latino	2	11.8%	0	0%	2	25%
Asian	1	5.9%	1	11.1%	0	0%
Black & Hispanic or Latina	1	5.9%	1	11.1%	0	0%

TABLE 7 CONTINUED: *PARTICIPANT DEMOGRAPHICS*

Marital Status						
Not Married	12	70.6	6	66.7%	6	75%
Married or Partnered	5	29.4%	3	33.3%	2	25%

The majority of study participants had little to no prior MI experience or knowledge and reported no or less than one hour of prior MI training (82%) at baseline. One LS student did not report on prior MI Training. Using test of proportions, the amount of MI training experienced outside of the study between groups during the semester showed no significant difference ($X^2=.28$, $df=1$, $p=.6$). Randomization across demographics between groups was also successful for marital status ($X^2=.04$, $df=1$, $p=.84$), race/ethnicity ($X^2=.46$, $df=1$, $p=.5$), gender ($X^2=.96$, $df=1$, $p=.33$), and age, $t(15)=-.48$, $p=.67$, 95% CI [-5.13-8.13]. Additional details of learner characteristics by group can be seen in Table 7 and Table 8.

TABLE 8: *OTHER MI LEARNER CHARACTERISTICS*

Variable	Live Supervision (n=9)		Coding Learning (n=8)	
	n or M	% or sd	n or M	% or sd
Years of Paid Direct Human Service Work	1.11	1.3	1.13	2.8
Students w/ paid work experience	4	44.4%	2	25%
Students w/ NO prior experience	5	55.6%	6	75%
Years of Volunteer Human Service Work	1.83	1.84	.75	1.16
Students w/ volunteer work	6	77.8%	3	37.5%
Students w NO volunteer work	2	22.2%	5	62.5%
Academic Level				
Bachelors	3	33.3%	3	37.5%
Foundation Year MSW	3	33.3%	2	25%
Advanced Year MSW	3	33.3%	3	37.5%

TABLE 8 CONTINUED: *OTHER MI LEARNER CHARACTERISTICS*

MSW Students who have BSW	3		3	
Employed in CW Agency (not field)	0		1	
Prior Reported MI Training				
None or less than one hour	8	100%	6	75%
Greater than one hour	0	0%	2	25%
MI Training during semester other than study training				
None or less than one hour	7	77.8%	7	87.5%
Greater than one hour	2	22.2%	1	12.5%

Motivational Interviewing Skill

Summary Scores

Reflection to Question Ratio. The MI summary skill of Reflection to Question (R:Q) ratio is calculated by dividing total number of reflections (complex and simple) by total number of questions. A one-to-one ratio is suggested baseline competency (Moyers, Manual, & Ernst, 2014) with higher ratios indicating more skill. Observing trends visually and using univariate data of group means, both groups increased in R:Q skill from T1 to T3, seen in Figure 5.

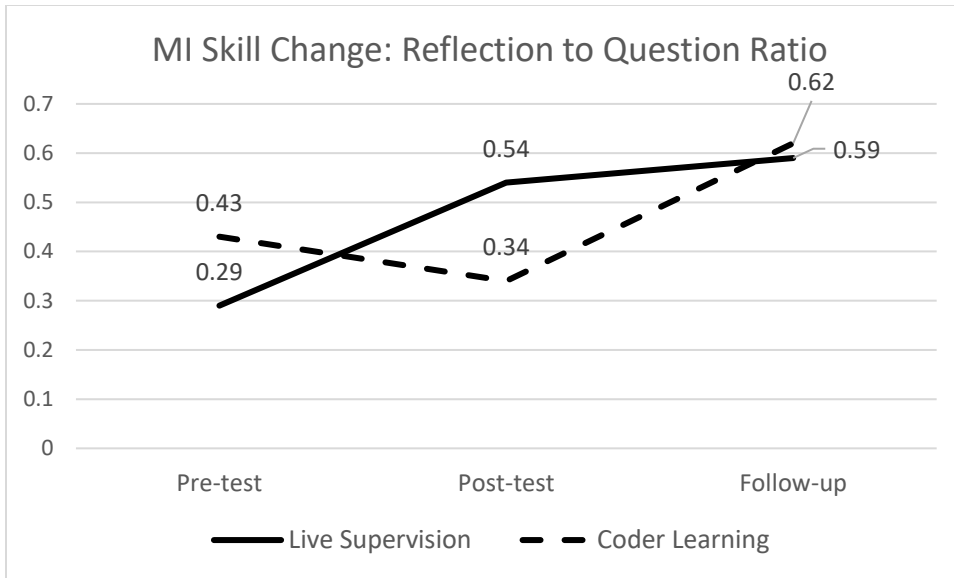


FIGURE 5: MI SKILL BY GROUP OVER TIME: REFLECTION TO QUESTION RATIO.

TABLE 9: MI SKILL MEANS: REFLECTION TO QUESTION RATIO

Time	Live Supervision		Coding Learning		All Participants	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
T1	.29	.19	.43	.27	.36	.24
T2	.54	.21	.34	.22	.44	.23
T3	.59	.24	.62	.35	.60	.29

Note: R:Q competency baseline is 1:1, the higher the ratio the better the skill/score

Bivariate analyses (independent sample t-tests) indicated there was no significant difference in R:Q skill between the LS and CL groups at pre-test and paired sample t-tests (see Table 10) indicate the gains in group means were not statistically significant within groups. Statistically significant skill increase was noted for all participants (LS and CL groups combined) from T1-T3, $t(15) = -2.27, p = .04, 95\% \text{ CI} [-.45, -.01]$ and T2-T3, $t(12) = -2.69, p = .02, 95\% \text{ CI} [-.45, -.01]$.

Multivariate analysis of two-way repeated-measures ANOVA was used to assess for differences within subjects and between groups from T1 to T3. There was a significant main effect of time, $[F(1, 14) = 4.89, p = .045]$. There was not a significant

effect for groups [$F(1, 14)=.742, p=.404$], indicating that there was a statistically significant increase in R:Q skill from T1 to T2, and both groups had a comparable increase. There was not a significant interaction effect between time and the group $F(1,14)=.171, p=.686$.

TABLE 10: *MI SKILL CHANGE WITHIN GROUPS: REFLECTION TO QUESTION RATIO.*

Time	Live Supervision		Coding Learning		All Participants	
	<i>t(df)</i>	<i>p</i>	<i>t(df)</i>	<i>p</i>	<i>t(df)</i>	<i>p</i>
T1-T2	-2.29(6)	.06	.26(6)	.8	-1.28(13)	.23
T2-T3	-1.43(5)	.21	-2.24(6)	.07	-2.69(12)	.02*
T1-T3	-2.18(7)	.07	-1.12(7)	.3	-2.27(15)	.04*

* $p<.05$

Percent Complex Reflections. The MI summary skill of Percent Complex Reflections (%CR) is calculated by dividing the number of complex reflections counts by the total number of reflection counts (simple and complex). The suggested competency baseline for %CR is .40 (Moyers, Manual, & Ernst, 2014).. Observing skill change visually and using univariate data of group means, both group increased in %CR skill from T1-T3, observable in Figure 6.

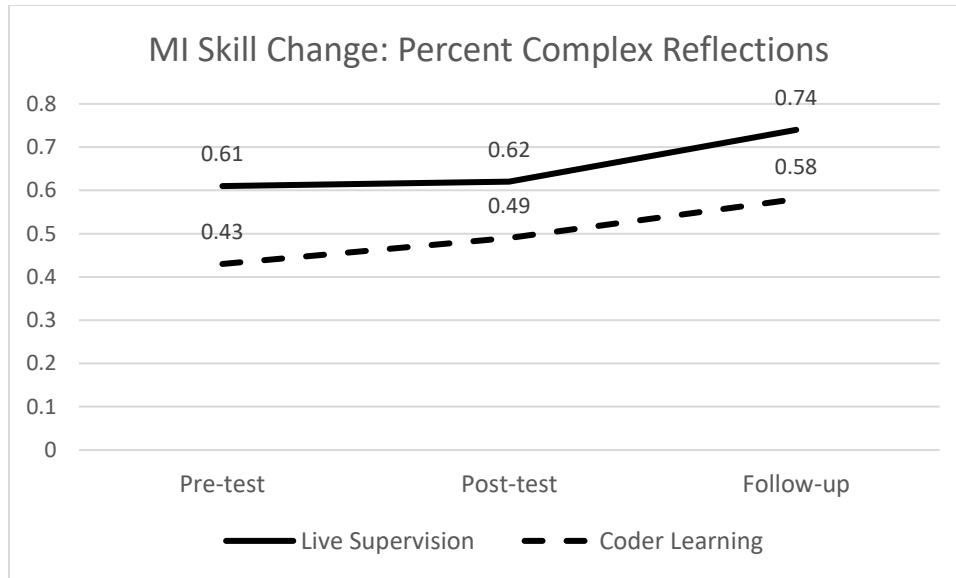


FIGURE 6: MI SKILL BY GROUP OVER TIME: COMPLEX REFLECTIONS.

TABLE 11: MI SKILL MEANS: PERCENT COMPLEX REFLECTIONS.

Time	Live Supervision		Coding Learning		All Participants	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
T1	.61	.30	.43	.25	.53	.28
T2	.62	.13	.49	.29	.56	.22
T3	.74	.15	.58	.16	.65	.17

Note: Suggested competency baseline for %CR is .40, the higher the ratio the better the skill/score

Bi-variate analysis (independent sample t-test) indicated there was not a significant difference in %CR skill between the LS and CL groups at pre-test. Paired sample t-tests indicate the LS group demonstrated statistically significant skill gains from T2-T3, $t(5) = -2.77, p = .04, 95\% \text{ CI} [-.35, -.01]$, not T1-T3 or T1-T2. Bi-variate analyses did not indicate significant skill gain for the CL group at any time point (See Table XX). Significant %CR skill increase was also noted for all participants from T2-T3, $t(12) = -2.88, p = .01, 95\% \text{ CI} [-.24, -.03]$.

A two-way repeated-measures ANOVA was used to assess for differences within subjects and between groups from T1-T3. There was not a significant main effect for time [$F(1, 14)=2.56, p=.13$]. There was a significant effect for groups, indicating there was a difference in the MI skill of %CR between the LS and CL groups, [$F(1, 14)=7.61, p=.015$], with LS demonstrating higher level of %CR skill. There was not a significant interaction effect between time and group $F(1,14)=.57, p=.46$.

TABLE 12: *MI SKILL CHANGE WITHIN GROUPS: PERCENT COMPLEX REFLECTIONS.*

Time	Live Supervision		Coding Learning		All Participants	
	<i>t(df)</i>	<i>p</i>	<i>t(df)</i>	<i>p</i>	<i>t(df)</i>	<i>p</i>
T1-T2	-.55(6)	.6	-.72(6)	.5	-.94(13)	.36
T2-T3	-2.77(5)	.04*	-1.46(6)	.2	-2.88(12)	.02*
T1-T3	-.55(7)	.6	-1.81(7)	.11	-1.62(15)	.12

* $p<.05$

Relational Global. The MI summary skill of Relational Global is calculated by adding the Global Empathy and Partnership Ratings (scaled 1-5) and dividing by 2. The suggested competency baseline for the Relational Global is 3.5. Observing trends visually and using univariate group means data (see Figure 7 and Table 13), the mean relational global score increased slightly within the LS group from T1($M=2.67, SD=.79$) to T2 ($M=3, SD=.4$), and the mean remained the same at T3 ($M=3, SD=.71$). The CL group increased in their Relational Global skill from T1($M=1.81, SD=.53$) to T2 ($M=2.29, SD=.95$) and from T2 to T3 ($M=2.63, SD=.95$)

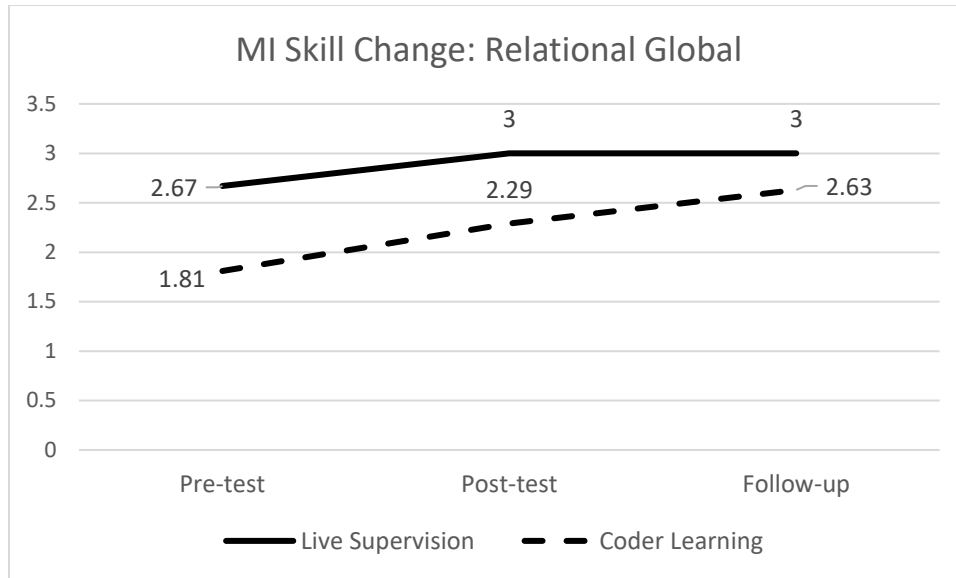


FIGURE 7: MI SKILL OF RELATIONAL GLOBAL BY GROUP ACROSS TIME

TABLE 13: MI SKILL MEANS: RELATIONAL GLOBAL

Time	Live Supervision		Coding Learning		All Participants	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
T1	2.67	.79	1.81	.53	2.26	.79
T2	3.0	.40	2.29	.95	2.64	.79
T3	3.0	.71	2.63	.95	2.81	.83

Note: Suggested competency baseline for Relational Global is 3.5, the higher the ratio the better the skill/score

Bivariate analyses (independent samples t-test) show that at pre-test (T1), the CL group's Relational skills were significantly lower than the LS group, $t(15)= 2.58, p=.02$, 95% CI [.15, 1.56]. Statistical significance was not met for within group skill change in either the LS or the CL group; however, a trend toward significance was observed from T1 to T3 $t(7)= -2.30, p=.055$, 95% CI [.02, -2.30] for the CL group. Bivariate analysis for all participants revealed a significant increase in Relational Global skill from T1 to T3 $t(15)= -2.19, p=.045$, 95% CI [-.99, -.01]. See Table 11 for additional details.

A two-way repeated measure ANOVA revealed a significant main effect of time, $[F(1, 14)=5.12, p=.04]$ and a significant effect for groups $[F(1, 14)=5.378, p=.036]$.

Thus, multivariate analysis indicating that the groups Relational scores changed over time, and the change in the Relational score was different between the LS and CL groups, with the CL group demonstrating greater skill gains in this area. There was not a significant interaction effect between relational skill over time and the group [F(1,14)=2, $p=.18$].

TABLE 14: *MI SKILL CHANGE WITHIN GROUPS: RELATIONAL GLOBAL*

Time	Live Supervision		Coding Learning		All Participants	
	<i>t(df)</i>	<i>p</i>	<i>t(df)</i>	<i>p</i>	<i>t(df)</i>	<i>p</i>
T1-T2	-.63(6)	.56	-1.38(6)	.25	-1.47(13)	.17
T2-T3	0(5)	1	-.70(6)	.51	-.67(12)	.52
T1-T3	-.70(7)	.50	-2.3(7)	.06	-2.2(15)	.05*

* $p<.05$

Summary of MI Skill Score Analyses Results. A summary of analyses results can be viewed in Table 15. As indicated, univariate analysis indicated mean scores for all MI skills increased from T1 to T3 in both the LS and CL groups. Bivariate analyses did not indicate statistically significant within group gains from T1-T3 for any skill area. Multivariate analyses indicated participants in both groups gained comparable R:Q skills, participants in the LS group had higher level of %CR scores at T1-T3 than the CL group, and the CL group demonstrated higher Relational skill gain than the LS group from T1-T3.

TABLE 15: *SUMMARY TABLE OF MI SKILL ANALYSES RESULT BY GROUP*

MI Skill Area	Univariate		Bivariate		Multivariate
	LS	CL	LS	CL	LS & CL
Reflection to Question Ratio	Increase in mean from T1-T3.	Increase in mean from T1- T3.	Increase from T1-T3 not statistically significant.	Increase from T1-T3 not statistically significant.	Significant main effect for time. No significant effect for group.
Percent Complex Reflections	Increase in mean from T1-T3.	Increase in mean from T1-T3.	Increase from T1-T3 not	Increase from T1-T3 not	No significant effect for time. Significant

TABLE 15 CONTINUED: *SUMMARY TABLE OF MI SKILL ANALYSES RESULT BY GROUP*

			statistically significant.	statistically significant.	effect for group, with LS demonstrating greater skill.
Relational Global* *Skill level significantly different at T1	Increase in mean from T1-T3.	Increase in mean from T1-T3.	Increase from T1-T3 not statistically significant.	Increase from T1-T3 not statistically significant.	Significant main effect for time. Significant main effect for group, with CL demonstrating greater skill.

Note: Significance measured at P<.05 level

Competency Baselines. As previously indicated, the MITI provides suggested competency baselines for practitioners of MI. Using these baselines as thresholds, the scores of participants for each skill were recoded into a dichotomous variable of the competency being Met or Not Met. In the skill area of R:Q, no student in either group met competency at baseline and an equal percentage of participants in both LS and CL (12.5%) met competency at follow-up (T3). At pre-test (T1), a smaller portion of students in the CL group (75%) met baseline competency for %CR than in the LS group (87.5%). At follow-up (T3), the percentage of students meeting competency level for %CR increased by 12.5% in both the LS and CL group. All of the participants in the LS group met competency baseline for %CR whereas 87.5% of CL met baseline. Regarding the relational global, the same percentage of participants in both LS and CL (37.5%) met competency at follow-up (T3); however, the CL group was significantly lower at baseline (T1) in this area than LS, indicated the CL group demonstrated more gains in this skill area over time than the LS group. Empathy is a component of the Relational score, and is included for comparison purposes. In this area, the CL group was also lower at baseline. The percentage of students within the CL group meeting competency baseline in the area

of Empathy increased from 12.5% to 62.5% over the duration of the study. The percentage of students within the LS group meeting the competency threshold for Empathy grew from 50% at baseline to 75% at follow-up. Additional percentages over time can be view in Table 16.

TABLE 16: *PERCENTAGE OF SAMPLE MEETING MI SKILL COMPETENCY THRESHOLDS*

MI Skill	Live Supervision			Coding Learning		
	T1	T2	T3	T1	T2	T3
R:Q	0	0	12.5	0	0	12.5
% CR	87.5	100	100	75	71.4	87.5
Relational	22.2	42.8	37.5	0	14.3	37.5
Empathy	50	100	75	12.5	28.5	62.5

Behavior Counts

Total MI-Adherent Statements. Significance testing indicates no differences in MIAs between the LS and the CL groups at pre-test. Additionally, there were no significant differences in MIAs within either learning group or among all participants between any time points in the study. Means for both groups indicate a slight increase in MIAs from T1 (LS M=5.33, SD=4.7; CL M=4.38, SD=3.25) to T2 (LS M=7.29, SD=3.3; CL M=5.57, SD=3.95), with this decreasing from T2 to T3 (LS M=6.63, SD=2.21; CL M=4.88, SD=2.59), while still remaining above the baseline means at follow up. See Figure 8 for graphical illustration.

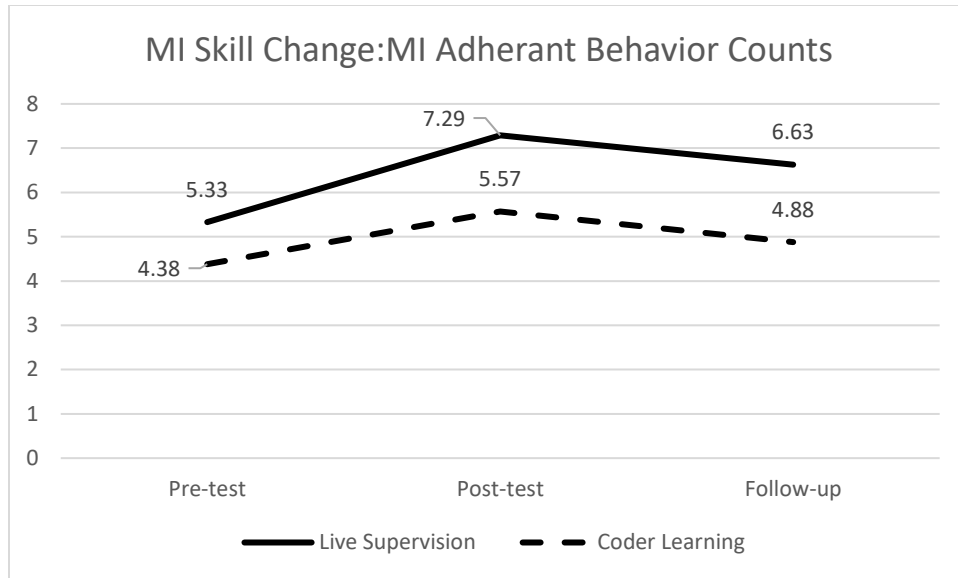


FIGURE 8: MI ADHERENT BEHAVIOR COUNT GROUP MEANS

MI Non-Adherent Statements. Significance testing indicates no differences between the LS and CL groups in MINAs at pre-test. Trends, observable in Figure 5, indicate the LS training was more successful in decreasing MINAs. The LS group mean decreased from T1 (M=4.2, SD=4.9) to T2 (M=2, SD=1.4), then increased slightly at T3 (M=2.8, SD=2.5). The CL group mean increased from T1 (M=2.75, SD=3.1) to T2 (M=6.86, SD=5.2), then decreased at T3 (M=4.88, SD=3.9). There are no suggested competency baselines for MIA or MINA scores in the literature.

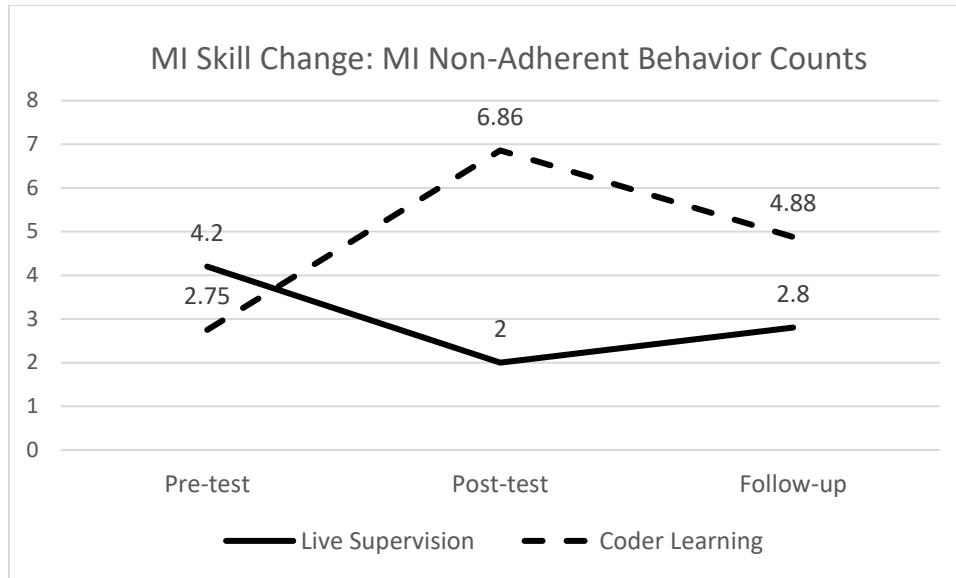


FIGURE 9: MI NON-ADHERENT BEHAVIOR COUNT GROUP MEANS.

In the absence of a suggested baseline, the percentage of students with 5 or less MINAs and 5 or more MIAs was calculated for each group. This was selected based on professional opinion and observation from the author. From this perspective, both groups had the same proportion of students with 5 or less MINAs at T3, whereas the LS group had more students (87.5%) with 5 or more MIAs at T3 than the CL group (62.5%).

TABLE 17: PERCENTAGE OF POPULATION MEETING MI SKILL CREATED THRESHOLDS

MI Skill	Live Supervision			Coding Learning		
	T1	T2	T3	T1	T2	T3
MINA<5	66	100	75	75	43	75
MIA>5	55	85.7	87.5	50	57.1	62.5

Motivational Interviewing Knowledge and Attitudes

Results of independent t-tests show no statistically significant differences between the LS and CL groups in MI knowledge and attitudes at pre-test. Paired t-test analyses demonstrate both the LS ($t=-2.65$, $df=7$, $p=.03$) and CL ($t=-3.97$, $df=7$, $p<.01$) group scores for MI knowledge and attitudes increased from pre-test to follow up (T1-T3): . The average score for the CL group ($M=17.63$, $SD=2.73$) was slightly lower than LS

(M=17.88, SD=1.64) at T1 and slightly higher (M=20.88, SD=2.32) than LS (M=19.78, SD=1.85) at T3. There were not significant gains in MI knowledge and attitudes from T1 to T2 or T2 to T3 for either group or for all participants.

Results of two-way repeated measures ANOVA for the MIKAT indicated there was a significant main effect of time, $F(1, 14)=22.21, p <.001$. There was no significant effect of groups, indicating that the change in MI knowledge and attitudes from participants in both the LS and CL groups were in general the same, $F(1, 14) =.161, p=.70$. There was not a significant interaction effect between MI skill over time and the group $F(1,14)=3.13, p=.281$.

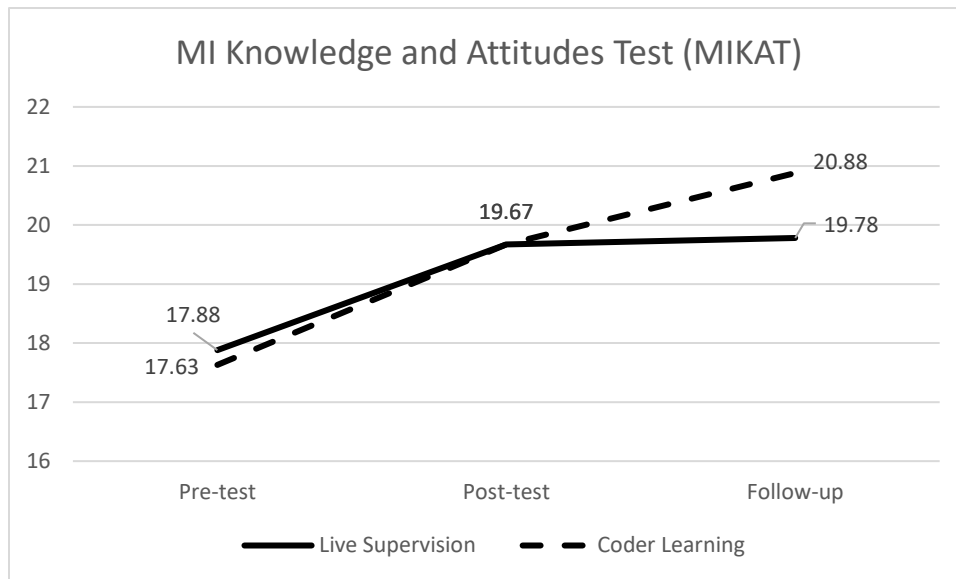


FIGURE 10: MI SKILL BY GROUP OVER TIME: MOTIVATIONAL INTERVIEWING KNOWLEDGE AND ATTITUDES.

TABLE 18: MIKAT SUMMARY SCORE

	Pre-Test (T1)					Post-Test (T2)					Follow-up (T3)				
	<i>n</i>	Min	Max	M	sd	<i>n</i>	Min	Max	M	sd	<i>n</i>	Min	Max	M	sd
All	16	13	22	17.75	2.17	12	14	24	19.67	2.93	17	18	24	20.29	2.05
LS	8	16	20	17.88	1.64	6	14	24	19.67	3.72	9	18	23	19.78	1.85
CL	8	13	22	17.63	2.73	6	18	24	19.67	2.25	8	18	24	20.88	2.32

Participant Training Satisfaction

Participant satisfaction was evaluated via an anonymous survey all trainees completed at the end of the two-day training period. Both research participants and non-participants in Coding Learning (n=18) and Live Supervision (n=18) completed this survey. Only aggregate per item data were provided for each learning group, as it was summarized by the Title IV-E program to maintain anonymity. The survey contained 13 items with a 5 point Likert scale response option ranging from Strongly Disagree (1) to Strongly Agree (5). The LS group endorsed 1,137 of a possible 1,170 pts, indicating 97% overall satisfaction. The CL group endorsed 1,096 of a possible 1,170 pts, indicating a 94% overall satisfaction rating.

The satisfaction survey data were not normally distributed--as a result responses were recoded from 1-5 Likert Scale into a dichotomous variable with two categories: 5 and Not 5, so a response of 4 became the same as a response of 1, 2, or 3 and vice versa. Once recoded, a test of proportions was used to test for statistically significant differences between training groups for each survey item. Statistically significant differences were found between the groups on 3 of 13 satisfaction survey items, with the LS group demonstrating higher levels of satisfaction on the following statements: *The learning objectives were relevant to my learning needs*, $X^2(1, N=36)=4.8, p=.02$; *Workshop activities enhanced my learning*, $X^2(1, N=36)=4.1, p=.04$; *Overall, I was satisfied with the learning experience at the training*, $X^2(1, N=36)=4.1, p=.04$.

The mean satisfaction rating for each survey item was slightly higher for the LS group than the CL group for every item except one, Q12. The LS group endorsed experiencing more anxiety than the CL group. There was not a significant difference

between the LS and CL groups for overall mean scores ($t=2$, $df=24$, $p=.06$). Survey items and additional details can be viewed in Table 19.

TABLE 19: *PARTICIPANT TRAINING SATISFACTION SURVEY RESULTS*

Survey Item	Live Supervision		Coding Learning		X ²	df	p
	M	sd	M	sd			
Q1: The learning objectives were relevant to my learning needs	5.0	0	4.72	.46	4.7	1	.02*
Q2: The workshop achieved the learning objectives	4.94	.24	4.67	.77	1.9	1	.18
Q3: The workshop was relevant to child welfare practice	4.94	.24	4.67	.59	3.0	1	.08
Q4: Workshop activities enhanced my learning	4.94	.24	4.67	.49	4.0	1	.04*
Q5: Overall, this workshop was well organized with regard to content and variety of formats in which the material was presented	4.83	.38	4.61	.70	.6	1	.43
Q6: The trainer demonstrated a professional level of knowledge and experience	4.94	.24	4.89	.32	.28	1	.59
Q7: The trainer was able to encourage participation of trainees	4.94	.24	4.78	.43	1.8	1	.17
Q8: The presentation style of the trainer reflected a positive attitude towards the material and towards the trainee	4.94	.24	4.83	.38	1.0	1	.31
Q9: The trainer made the learning objectives and the purpose of the workshop clear	4.94	.24	4.78	.43	1.86	1	.17
Q10: The trainer asked and encouraged questions, which assisted my learning	4.94	.24	4.72	.57	1.86	1	.17
Q11: Overall, I was satisfied with the learning experience at the training	4.94	.24	4.61	.61	4.06	1	.04*
Q12: Overall, I did not experience much anxiety about learning methods in the trainings	3.94	1.16	4.33	.77	.12	1	.72
Q13: I would recommend this training to other social work students	4.89	.32	4.61	.78	1.6	1	.20
Total Mean Score	4.86	.28	4.68	.14	t=2(24)		

Educational Resource Efficiency

Educational resource efficiency was examined by calculating educational resources required in three ways: First, the approximate cost in US dollars, second, the number of educational resource units required, and then the number of personnel resource hours required for each training method. The amount of resources to train varies and multiple factors were taken into consideration and then included or excluded in

calculations depending on measurability and generalizability. (See Table 20 for additional details.) Cost in US dollars includes only personnel costs necessary to run the training, specific to the site where the training and study were implemented. Personnel costs included the supervisors/trainers, and the SCAs. Standardized Client Actor rates include paying for the cost of the actors during use, training hours, their parking costs, and project coordination with the simulation lab. The cost of SCAs for 6 hours of training time in LS was \$2,200. To calculate the approximate cost in dollars of a trainer, an hourly rate for a full-time staff member, an adjunct instructor, and a CEU trainer were averaged $(\$40.87+100+\$118.75)/3=\$692$ per trainer per training day). One time technology purchases of audio visual equipment and facilities costs are not included in cost factoring, including time spent by IT personnel setting up AV equipment. Calculated estimated costs using the above mentioned assets resulted in training operating costs of \$5,661 for LS and \$1,384 for CL.

Educational resources units considers resources necessary to operate the training. These include supervisors, classrooms, SCAs, and two different types of AV technology sets. Due to the LS set up, LS requires SCAs and more classrooms, supervisors, and technology. When calculated, the LS training requires 27 educational resource units and the CL training requires 6 educational resource units.

Personnel resource hours required takes into consideration the number of hours hired personnel would be needed to operate the trainings. Personnel required for training operation includes time from supervisors/trainers, SCAs, and IT personnel to set up the LS AV technology sets. An initial IT set up time of approximately five hours is not included within this personnel resource hour count. Operation of the LS training requires

83 personnel resource hours (the supervisors/trainers, the SCAs, and the IT set up) and operation of CL requires 16 personnel resource hours (the trainer). Facilities, SCA, and trainer costs in US dollars could all vary within an educational institution and would vary between different educational institutions, thus personnel hours provides the most accurate and generalizable unit of measurement.

To train a group of approximately 20 students, LS requires 21 more educational resource units, 67 more personnel resource hours, and \$4, 277 more dollars than CL. Increasing the number of students in each group by 10 students would increase the resource need for the LS group (requiring a set of classrooms, an additional supervisor, and another SCA) while the resource needs for the CL group remain the same for 20 or 30 students. Within the current study, all units of measurement indicate LS is more costly and requires more resources than the CL approach.

TABLE 20: EDUCATIONAL RESOURCES REQUIRED FOR MI TRAINING

	# Educational Resource Units				# Personnel Resource Hours				~ Cost in US Dollars			
	LS		CL		LS		CL		LS		CL	
	Day 1	Day 2	Day 1	Day 2	Day 1	Day 2	Day 1	Day 2	Day 1	Day 2	Day 1	Day 2
Supervisors	1	4	1	1	8	32	8	8	\$692	\$2,769	\$692	\$692
Classrooms	1	8	1	1								
SCAs	0	4	0	0	0	40	0	0	\$0	\$2,200	\$0	\$0
Tech Set 1	1	4	1	1								
Tech Set 2	0	4	0	0	3	0	0	0				
Total Per Day	3	24	3	3	11	72	8	8				
Total	27 Units		6 Units		83 Hours		16 Hours		\$692	\$4,969	\$692	\$692
Difference	21 Units				67 Hours				\$4,276.96			

Note: Technology Equipment Set 1: Standard classroom setting contents include computer, projector, and speakers. Technology Equipment Set 2: Observational setting classroom contents include video recorder wired to paired room computer/projector, earpiece, and microphone wirelessly connected to earpiece.

CHAPTER SIX: DISCUSSION

Results of this study demonstrate that MI knowledge and beginning MI skills can be taught to social work students in a relatively short time given the opportunity for practice application and skill development. These findings reinforce overall findings from studies of undergraduate psychology students (Madson, Schumacher, Noble, & Bonnell, 2013) and populations of social work students (Hohman, Pierce, and Barnett, 2015; Pecukonis et al., 2016). Several factors complicate comparisons, including the limited number of previous studies, different measures, and a different version of the MITI. Despite the limitations for comparison, the results from previous studies coupled with the findings from the current pilot study allow some conclusions to be drawn informing future teaching, training, and research efforts related to MI knowledge acquisition and skill attainment.

Study results also indicate that the two training groups were mostly satisfied, both endorsing over 90% satisfaction rate, with there being no significant difference in satisfaction rating for 10 out of 13 areas assessed via a participant satisfaction survey post-training. Additionally, calculations demonstrate the LS learning method to be more resource intensive and cost more money. Participant satisfaction ratings and personnel hours and cost have practice implications and administrative considerations for both MI training and SW education. This chapter first provides a review and interpretation of key findings for each DV. Then, strengths and limitations are detailed. Lastly, conclusions and implications are identified for SW education, MI training, and future research.

Key Findings

MI Skill

MI skills of Percent Complex Reflections, Reflection to Question Ratio, and Relational ability were examined using univariate, bivariate, and multivariate analyses. The skill area of using MI-Adherent behaviors and avoiding using MI Non-Adherent behaviors were examined visually using univariate data due to only having counts, which provide a piece of information within which context is necessary, and not summary scores. The following section reviews each MI Skill Summary score analyses results.

Percent Complex Reflection (%CR). Regarding the skill area of %CR, univariate, bivariate, and multivariate analysis provided different pieces of information about participant skill change over time. Both group means increased from T1 to T3. Bivariate analysis indicated the only statistically significant period of %CR skill change within groups was for the LS group, T2 to T3 in %CR. Multivariate analysis examining T1 and T3, using a two-way repeated measures ANOVA, then showed a significant within-subjects effect of improved %CR from T1 to T3 (but no difference in change between groups). Essentially, both groups increased in %CR skill at similar rate from T1-T3. The finding of skill gain in the area of %CR is a finding that aligns with the previous RCT using LS (Pecukonis et al., 2016), where gains in %CR were the only significant ($p < .05$) finding of skill change across time and between groups, with the comparison group being a teaching-as-usual control group. In the current study, there was not between group findings, indicating that both methods were associated with improvements—of a similar magnitude—in student’s use of % CR over the course of semester.

Assessment of competencies provides an additional opportunity for interpretation of results of an educational intervention. The percentage of students that met or exceeded baseline competencies in MI skill areas is a practical application of study outcomes. From this perspective, study results are useful and have real-world value within an academic social work setting particularly given that the study time period (T1-T3) was a semester. The percentage of students meeting competency increased by 12.5% in both groups.

TABLE 21: *PERCENTAGE OF SAMPLE MEETING MI SKILL COMPETENCY THRESHOLDS COMPARED TO PECUKONIS RCT.*

MI Skill	Live Supervision			Coding Learning			Pecukonis et al. Results (T4)	
	T1	T2	T3	T1	T2	T3	LS	TAU
R:Q	0	0	12.5	0	0	12.5	47.8	19.2
% CR	87.5	100	100	75	71.4	87.5	60.9	61.5
Relational	22.2	42.8	37.5	0	14.3	37.5		
Empathy	50	100	75	12.5	28.5	62.5	60.9	51.9

Reflection to Question Ratio. Regarding the skill area of Reflection to Question (R:Q) ratio, examining of trends and means indicates students, on average, started out with very low scores, improved from T1 to T3, ending with low scores with the group means still well below suggested baseline competency. Bivariate analysis indicated no significant within group change from T1 to T3 for either the LS or CL group. Multivariate analysis demonstrated a significant within-subjects change form T1-T3, but no significant effect for between subject factor of groups, meaning the participants in both groups increased in R:Q skill comparably, thus neither training method could be determined, given the study design, to be superior for R:Q skill learning.

Both groups started at baseline with no students in either group meeting the threshold for competency in R:Q. The percentage of students meeting competency at T3 was the same (12.5%) for both the CL and LS groups, and. From the perspective of an

educator, having only 12.5% of the class earning a passing grade is a red flag that this is a skill area in which more effort is needed. These findings indicate that child welfare practitioners continue to need to address the issue of workers talking to parents rather than with them and conducting interviews rather than facilitating conversations (Forrester, McCambridge, Waissbein, & Rollnick, 2008). These findings are also similar to the previous SW MI RCT (Pecukonis et al., 2016), in which the skill of reflection to question ratio was the area in which the smallest proportion of students met competency threshold at the final time point, and there were not significant improvements in the skill across time. Future focus on skill development in this area is needed within SW education and CW training.

Relational Global. The MI skill area of Relational Global, (an average of how well a worker demonstrates Partnership and Empathy) was the only skill area where there was an observed significant difference between the groups at pre-test (T1). Examining of group means showed an increase within both groups from T1 to T3, bivariate analysis indicated that these gains were not significant. Multivariate analyses indicated a significant main effect for time (within subjects) and group (between subjects), indicating that the CL group skill gain was significantly greater than the LS group.

Results of the Relational Global competency scores examined from an educator's perspective indicate that the same percentage of students in each learning group (37.5%) met competency at T3. Said another way, there was no difference between CL and LS in the portion of students who earned a "pass" at the end of the semester. The percentage of students meeting competency in LS increased 15.5 from baseline to follow-up, and in the CL group the percentage of students meeting competency from baseline to follow up

increased by 37.5. Examining empathy without the partnership component shows that a number of students in each group also “improved their grade” to a pass over time. At follow up, 75% of the LS students met competency thresholds, as compared to 50% at baseline. An even greater proportion of CL students “improved their grade” in the area of empathy to a pass over time, with 62.5% hitting the mark for competency at the end of the semester, as compared to only 12.5% at time of pre-test. For the LS group, these findings are comparable to the MI SW RCT (Pecukonis et al., 2016) in which 60.9% of the LS group met competency for Empathy score at the follow-up (T4).

MI Non-Adherent (MINAs) and MI-Adherent (MIAs) Behaviors. Skill change trends for MINAs and MIAs were not examined using multivariate analysis due to the nature of the scores (which were counts). This has implications for future research as this information is valuable, but not without additional contextual information.

Working to find a way to more easily interpret this information as a score would add to study results and aid future research, and inform decision making in the area of MI training and SW education. Viewing the MIA data graphically using group means shows a similar trend of learning within both groups, with both groups increasing slightly in use of MIAs over time from T1 to T3. Viewing the MINA data graphically, the LS group learning appeared superior for reducing number of MINAs over time, the CL group increased from T1 to T2, and T2 to T3.

MI Knowledge

Visual trends and group means indicated both groups demonstrated MI knowledge gains (as measured by the MIKAT) from T1 to T3, at comparable rates of increase. Bivariate analysis of within group change confirmed that the change from T1 to

T3 was significant for both the CL and LS groups. Multivariate analysis also confirmed this, resulting in a significant main effect for the within-subjects factor of time and no significant effect for the between subject factor of group, meaning the rate of MI knowledge learning and attitude improvement was comparable in both groups.

Applied practically to a classroom setting, if the MIKAT were a quiz given within a course, the results indicate the average student grade improved by almost an entire letter grade from T1 to T2, with gains holding (LS) or improving slightly (CL) at T3 with no additional structured MI training from T2 to T3. The MIKAT mean score results are consistent with other MI student learning studies using the MIKAT, where Madson and colleagues (2013) found students in a one week course and 16 week course demonstrated greater increases in MI knowledge than students in a one hour MI lecture, with no post-course differences in proficiency abilities between the extended and intensive course. At post-test, the one week intensive course group had a mean of 20.66 (SD=3.04) and the 16 week extended course had a mean of 20.96 (SD=3.14). These student MIKAT scores are similar to this study LS group mean 19.78 (SD=1.85) and CL group mean of 20.88 (SD= 2.32).

Student Satisfaction

The LS group displayed higher levels of satisfaction on some items but levels of satisfaction were high for both groups. A test of proportions demonstrates higher levels of satisfaction for the LS group on 3 of 13 items rated for student satisfaction with training. Overall, the LS group training earned a 97% satisfaction rating by participants, and the CL group training earned a 94% satisfaction rating. There was not a significant difference

($t=2, df=24, p=.06$) between groups for mean item ratings for LS (M 4.86, SD=.28) and CL (M=4.68, SD=.14).

Examining item level differences, the LS group endorsed significantly higher levels of agreement, indicating increased satisfaction, for the following statements: *The learning objectives were relevant to my learning needs; Workshop activities enhanced my learning; and Overall, I was satisfied with the learning experience at the training.* The CL group and LS groups interacted during lunch each day, and at the end of the training experience, and as a result were aware there were different types of MI training occurring. The lower level of experiential practice, larger group size, less individualized attention, and lack of an ongoing child welfare simulation scenario in the CL group could explain lower levels of satisfaction in the areas of relevance to learning needs, workshop activities, and overall learning experience satisfaction. The LS group had a lower mean score than the CL group on only one item- *Overall I did not experience much anxiety about learning methods in the training*, though this difference in group means between CL and LS was not statistically significant. The LS group likely endorsed more anxiety due to the one-on-one interaction and observational component of LS. Simulation and observation have been reported in prior literature to cause report of increased anxiety amongst training participants, and it appears participants in this study felt similar (Smith et al., 2012).

Resources Required

Considering cost/resource efficiency, findings indicate that MI knowledge and some core MI skills can be learned or improved upon without more resource intensive teaching methods. All units of resource measurement (including the number of

educational resource units, number of personnel resource hours, and approximate cost in US dollars) within the current study indicate LS is the more resource costly training method. Given this result coupled with the results of Q1, specifically the percentage of students in each group reaching competency thresholds, the CL learning method appears to be the more resource efficient method for teaching beginning MI skills to SW students learning over time (T1-T3, over the course of a semester). Though not comparable methodologically, these results echo that of other MI trainings considering cost/resource efficiency that indicate MI trainings with less expensive/resource intensive training methods can still produce effective MI learning and skill gain can still be achieved compared to other more costly methods (Doran, Hohman, Koutsenok, 2011; Olmstead, Carroll, Canning-Ball, & Martino, 2011).

Limitations

This study has methodological limitations that temper the interpretation of the findings. First, the researcher was also the trainer for one of the study implementation groups (CL). To counter the likelihood of bias, the study included a fidelity check of all the trainers, and the data were coded blind to group assignment and time point. The coder trainer did not examine any data prior to training coders to also counter the likelihood for potential bias. The fidelity check of trainers did indicate trainers being below competency threshold in some areas, and it is unclear what impact this may have had on quality of training. An additional limitation is the potential for bias or influence by students not in the research, in opposite training groups, or other trainers. The small sample size is a large limitation of this study as significance testing for anything but very large effects was not possible.

Data collection also posed several study challenges. A potential limitation could be non-random error due to SCA assignment, because randomization of subjects to SCAs at T2 and T3 was not possible due to logistical issues. There were numerous issues over the length of the study within the simulation lab that impacted quality of the SCA training, the testing scenarios, and recording of the data, both with participants and with the fidelity test. The study also testing two training methods and did not contain a “learning-as-usual” control group. A control group would further inform the results to indicate if the learning that occurred to T1 to T3 is comparable to the learning that occurs for many social work students over the course of the semester. This would be particularly useful given the study did not examine student’s ability to cultivate change talk or soften sustain talk, which are skills more unique to MI, whereas skills of reflection and being empathetic are also social work skill. Lastly, 22 audios (out of 47) not being over 20 minutes in length is a potential threat to validity of MITI coding. The limitations of the SCA encounters should be taken into consideration when interpreting these findings.

Strengths

The current study has several strengths. First, the study is structured upon a theory, using a model of adult skill acquisition, and prior MI training research. The research clarifies implications for future research in the SW education and MI literature, and adds to the current body of knowledge. The study improves on limitations of a previous RCT implemented within the same setting, including lack of a true baseline/pretest and no fidelity measure of LS trainers. Second, the study uses an experimental design, randomizing subjects to training condition. Third, despite the availability of research on MI training, this study is the first MI training study to

implement and evaluate the use of MITI coding as the primary method to teach MI skills for clinical practice rather than research. Fourth, an observational measure of MI skill was used in addition to a measure of knowledge, so there is evidence of not just knowledge gain, but also skill acquisition and application. Fifth, study results have practical implications for social work educators, MI trainers, and researchers. Lastly, the training curriculum structure is available for implementation allowing MI, as an EBP well suited for SW education, to be integrated within social work course curriculums.

Implications

This study used the innovative components of standardized client actors (SCAs), live supervision, and coding in teaching methods to further the research on MI knowledge and skill training for social work students, specifically those preparing for careers with child welfare populations. This section will first discuss considerations regarding the use of SCAs, then implications related to use of coding as a teaching method. Lastly, MI training and research within SW education will be discussed.

Use of Standardized Client Actors

Findings regarding the benefits of training with SCAs are inconclusive, and thus further research is needed, particularly to determine the circumstances under which SCAs are most effective and efficient. This study did not specifically evaluate use of SCAs as a DV, instead integrating use of SCAs with the LS method, and also using SCAs for testing. Future studies could specifically examine the role of SCAs. For example, for teaching purposes in LS, students could be randomized to LS training using real play/role play or SCAs, and differences could be assessed. For testing purposes, students could be assessed using an SCA interaction and an audio of an actual client interaction.

Prior studies have also documented the need for additional research on the use of SCAs, perhaps indicating the difficulty of preparation and simulation for such a complex position. Regarding MI training, prior studies have found that while training with SCAs was associated with skill gain, there was no significant difference in skill gain between the SCA training and another simulation type activity such as “real” play (Lane, Hood & Rollnick, 2008), or that, despite training, the reactions and responses of SCAs were not consistent with how clients would generally respond (Miller et al., 2004). Given the cost associated with SCA use, alternatives are desirable.

Considerations of Coding as a Teaching Method for Clinical Skills

Considering cost and logistical challenges of SW and MI training and the results of this pilot study, the innovative aspect of providing coding training as a method of teaching MI warrants additional attention. Personal communication with MI experienced SW educators and one prior study (Hohman, Pierce, and Barnett, 2015) notes the usefulness of coding as a tool; however, no published research studies have been found that implemented and evaluated the effectiveness of learning MI via learning MITI coding. Given the role of empathy in human service interactions (Greeno, Ting, Pecukonis, Hodorowicz, & Wade, 2017) an accessible and cost efficient training that results in significant participant skill gain within a low-risk environment is a valuable resource. Results of this pilot study indicate additional research is warranted to explore the promising practice of a coding based MI training for building relational skills, including empathy and partnership, in social workers.

MI Training in SW Education

A review of MI training and SW education literature revealed MI training has been more frequently implemented with professional staff in the field than with students within traditional academic settings (Hohman, Pierce, & Barnett, 2015; Madson, Loignon, & Lane, 2009). MI trainings specifically for SW students are even less common. Professional communication with social work educators indicates MI is being integrated into SW education. Some of this has resulted from the major push from the Health Resources and Service Administration (HRSA) to incorporate Screening, Brief Intervention, and Referral to Treatment (SBIRT), which has an MI-base. The push toward more evidence based practice is also important for social work. Given the potential value MI has as an EBP method to be taught to students, more effort should be made to integrate these skills into practice, to evaluate the teaching and the outcomes of the teaching, and then disseminate this knowledge to the broader social work profession outside of the educational institution.

Implementation of a research study within a social work educational setting presented a unique set of logistical challenges. Time, resources, and personnel were necessary and fitting assessment time into an already crowded training implementation week proved burdensome and was a noted barrier to recruitment. In the future, there should be consideration to creatively integrate training assessment and research data collection into forms and other methods of measurement already in practice, or be able to use the data for reporting purposes. This would ease additional burden. For example, coding of process recordings rather than SCA interactions could be conducted. Results of quantitative assessment of skills could be used for CSWE competency reporting,

relieving burden on Foundation practice teachers and providing a more accurate and practical assessment of actual skill, in addition to knowledge.

MI research has shown that people of all education levels can learn MI (Miller et al., 2004). Efficiently investing resources into EBP training during SW education could positively impact our profession and even perhaps be more cost and time efficient than attempting to retrain or train once in professional settings, where organizational challenges may present barriers to overcome (Miller & Moyers, 2016). The need for EBP integration into SW education was described in a previous chapter, and it is worth repeating that generalist skills are inadequate for graduating social workers in today's clinical practice environment. Professionals in other helping professions, such as the medical and dental industry, must demonstrate competency in practice skills and SW should consider this to some degree as well, in a more consistent manner than a "pass" or "fail" grade given by a field instructor.

Conclusion

The most efficient and effective method of training social work students has yet to be determined. The results of this pilot study suggest a "targeted teaching" approach could balance logistic and cost demands with knowledge acquisition and skill gain in an academic setting. Acknowledging the process of learning MI set within a model of adult skill acquisition could provide a structure of mixed teaching methods for specific MI skill sequences. For example, a targeted teaching approach process could use the less-resource demanding CL training initially to lay a foundation of learning and teach the skills of Partnership and Empathy (Relational Global) and using reflections. Then, the more intensive resource method of LS could be used to further hone the skill of %CR and

decrease use of MINAs after competency in Relational is demonstrated. The skill of Reflection to Question ratio could then be practiced within LS, but progressed through using actual client interactions in SW field placements (to gather information via reflection rather than questions may be most realistic only with actual clients rather than SCAs due to the nature of evoking and natural process of engaging with genuine emotion rather than a scripted scenario. Additionally, the use of a field placement setting rather than a simulation lab would reduce SCA cost.). Overall, a multi-stage MI learning process that maps onto a model of adult skill acquisition would be beneficial for the learner, the teacher, and the academic institution or agency training setting. See Figure 11 for an illustration of how this approach might unfold. Eventually, evaluation of the skills of cultivating change talk and softening sustain would be helpful within a SW educational setting, and long-term assessment in the area of benefit to the consumers in real-life settings could be assessed once fidelity to the intervention method is established.

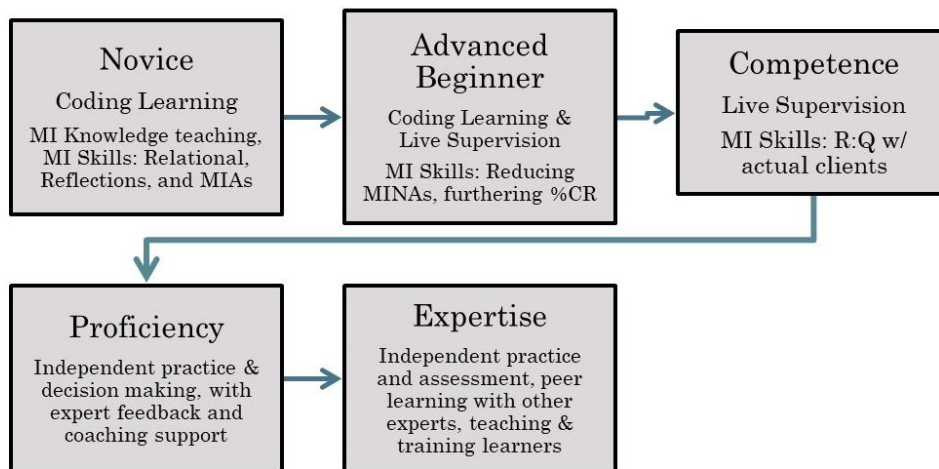


FIGURE 11: TARGETED MI TEACHING APPROACH USING CL AND LS

In conclusion, while more research is still needed, this pilot study adds valuable information to the body of knowledge on training in MI, specifically SW students. First,

this study is the initial study to evaluate the use of coding as a training method. Second, the study shows that training to increase knowledge and certain skill attainment is possible within one semester of learning. We know these skills can be evaluated in an observable manner using a quantitative measure, providing the opportunity to document MI skills and the use of skills that demonstrate interviewing competencies. This is valuable news to those engaged in a range of educational and training settings and has implications well beyond SW and MI practice, education, and research.

References

- Baer, J. S., Rosengren, D. B., Dunn, C. W., Wells, E. A., Ogle, R. L., & Hartzler, B. (2004). An evaluation of workshop training in motivational interviewing for addiction and mental health clinicians. *Drug and Alcohol Dependence*, 73(1), 99-106. Doi: 10.1016/j.drugalcdep.2003.10.001
- Baer, J. S., Wells, E. A., Rosengren, D. B., Hartzler, B., Beadnell, B., & Dunn, C. (2009). Agency context and tailored training in technology transfer: A pilot evaluation of motivational interviewing training for community counselors. *Journal Of Substance Abuse Treatment*, 37191-202. doi:10.1016/j.jsat.2009.01.003
- Barth, R.P. (2008). The move to evidence-based practice: How well does it fit child welfare services? *Journal of Public Child Welfare*. 2, 145-172.
- Barwick, M. a., Bennett, L. M., Johnson, S. N., McGowan, J., & Moore, J. E. (2012). Training health and mental health professionals in motivational interviewing: A systematic review. *Children and Youth Services Review*, 34(9), 1786–1795. doi:10.1016/j.chilyouth.2012.05.012
- Berger, L., Otto-Salaj, L., Stoffel, V., Hernandez-Meier, J., & Gromoske, A. (2009). Barriers and facilitators of transferring research to practice: an exploratory case study of motivational interviewing. *Journal Of Social Work Practice In The Addictions*, 9(2), 145-162 18p.
- Bledsoe, S. E., Weissman, M. M., Mullen, E. J., Ponniah, K., Gameroff, M. J., Verdeli, H., & ... Wickramaratne, P. (2007). Empirically Supported Psychotherapy in Social Work Training Programs: Does the Definition of Evidence Matter?. *Research On Social Work Practice*, 17(4), 449-455.

- Bride, B. E., Kintzle, S., Abraham, A. J., & Roman, P. M. (2012). Counselor attitudes toward and use of evidence-based practices in private substance use disorder treatment centers: a comparison of social workers and non-social workers. *Health & Social Work, 37*(3), 135-145.
- Bogo M., Sholonsky, A., Lee, B., & Serbinksi, S. (2014). Acting Like It Matters: A Scoping Review of Simulation in Child Welfare Training. *Journal Of Public Child Welfare, 8*(1), 70-93. doi:10.1080/155-18732.2013.818610
- Carpiano, R. M., & Daley, D. M. (2006). A guide and glossary on postpositivist theory building for population health. *Journal of Epidemiology and Community Health, 60*(7), 564-570.
- Chaffin, M., Funderburk, B., Bard, D., Valle, L.A., & Gurwitch, R. (2010). A combined motivation and parent-child interaction therapy package reduces child welfare recidivism in a randomized dismantling field trial. *Journal of Consulting and Clinical Psychology, 79*(1), 84–95. doi: 10.1037/a0021227
- Chaffin, M., Bard, D., Bigfoot, D. S., & Maher, E. J. (2012). Is a structured, manualized, evidence-based treatment protocol culturally competent and equivalently effective among american indian parents in child welfare? *Child Maltreatment, 17*(3), 242-252. doi:10.1177/1077559512457239
- Cicchetti, D. V. (1994). Guidelines, criteria, and rules of thumb for evaluating normed and standardized assessment instruments in psychology. *Psychological Assessment, 6*(4), 284-290. doi: 10.1037/1040-3590.6.4.284
- Cournoyer, B. R. (2016). *The social work skills workbook*. Cengage Learning.
- CSWE EPAS (2015) (<http://www.cswe.org/File.aspx?id=81660>)

- Croffoot, C., Bray, K. K., Black, M. A., & Koerber, A. (2010). Evaluating the effects of coaching to improve motivational interviewing skills of dental hygiene students. *American Dental Hygienists Association*, 84(2), 57-64.
- Crouch, C., & Parrish, D. E. (2015). Implementing Motivational Interviewing in an Urban Homeless Population: An Agency-University Collaboration. *Research On Social Work Practice*, 25(4), 493-498.
- Davidson, R. (1998). The transtheoretical model: A critical overview. In W. R. Miller, N. Heather, W. R. Miller, N. Heather (Eds.) , *Treating addictive behaviors (2nd ed.)* (pp. 3-24). New York, NY, US: Plenum Press. doi:10.1007/978-1-4899-1934-2_1
- DiClemente, C. C., & Prochaska, J. O. (1998). Toward a comprehensive, transtheoretical model of change: Stages of change and addictive behaviors. In W. R. Miller, N. Heather, W. R. Miller, N. Heather (Eds.) , *Treating addictive behaviors (2nd ed.)* (pp. 3-24). New York, NY, US: Plenum Press. doi:10.1007/978-1-4899-1934-2_1
- Dillman, D. A., & Dillman, D. A. (2000). *Mail and Internet surveys: the tailored design method*. New York : J. Wiley.
- Dishion, T. J., Shaw, D., Connell, A., Gardner, F., Weaver, C., & Wilson, M. (2008). The family check-up with high-risk indigent families: Preventing problem behavior by increasing parents' positive behavior support in early childhood. *Child Development*, 79(5), 1395-1414. doi:10.1111/j.1467-8624.2008.01195.x
- Dix, H. (2016). Motivational interviewing and social work education: The power of relationship based practice. *The Journal of Practice Teaching and Learning*, 14(1), 59-72.
DOI: <http://dx.doi.org/10.1921/jpts.v14i1.884>

- Doran, N., Hohman, M., & Koutsenok, I. (2011). Motivational interviewing training in juvenile corrections: A comparison of outside experts and internal trainers. *Legal and Criminological Psychology, 18*(2), 262-273.
- Dreyfus, S. E. (2004). The five-stage model of adult skill acquisition. *Bulletin of science, technology & society, 24*(3), 177-181.
- Dunn, C., Darnell, D., Atkins, D. C., Hallgren, K. A., Imel, Z. E., Bumgardner, K., ... & Roy-Byrne, P. (2016). Within-Provider variability in Motivational Interviewing integrity for three years after MI training: Does time heal?. *Journal of substance abuse treatment, 65*, 74-82.
- Faul, F., Erdfelder, E., Lang, A.-G., & Buchner, A. (2007). G*Power 3: A flexible statistical power analysis program for the social, behavioral, and biomedical sciences. *Behavior Research Methods, 39*, 175-191.
- Field, A (2009). *Discovering statistics using SPSS*. Thousand Oaks, CA: SAGE Publications.
- Forrester, D., McCambridge, J., Waissbein, C., & Rollnick, S. (2008). How do Child and Family Social Workers Talk to Parents About Child Welfare Concerns?. *Child Abuse Review, 17*(1), 23-35.
- Functional Family Therapy (n.d). *The sole authorized source for FFT training and implementation*. Retrieved June 4, 2016 from <http://www.fftlc.com/>
- Gayes, L. A., & Steele, R. G. (2014). A meta-analysis of motivational interviewing interventions for pediatric health behavior change. *Journal of Consulting and Clinical Psychology, 82*(3), 521-535.
- Gelman, A., & Hill, J (2007). *Data Analysis using regression and multilevel/hierarchical models*. New York, New York: Cambridge University Press.

- Gitterman, A. "Interactive andragogy: Principles, methods, and skills." *Journal of Teaching in Social Work* 24, no. 3-4 (2004): 95-112.
- Greeno, E. J., Ting, L., Pecukonis, E., Hodorowicz, M., & Wade, K. (2017). The role of empathy in training social work students in motivational interviewing. *Social Work Education, 36*(7), 794-808. doi:10.1080/02615479.2017.1346071
- Hall, A., & Hohman, M. (n.d). *Motivational interviewing in child welfare services video study guide and refresher*. Northern California Training Academy.
www.humanservices.ucdavis.edu/academy
- Hall, B. C., Stewart, D. G., Arger, C., Athenour, D. R., & Effinger, J. (2014). Modeling motivation three ways: Effects of MI metrics on treatment outcomes among adolescents. *Psychology of Addictive Behaviors, 28*(1), 307.
- Hallgren, K. A. (2012). Computing Inter-Rater Reliability for Observational Data: An Overview and Tutorial. *Tutorials in Quantitative Methods for Psychology, 8*(1), 23–34.
- Hohman, M. (2012). *Motivational Interviewing in Social Work Practice*. The Guildford Press, New York, New York
- Hohman, M., Pierce, P., & Barnett, E. (2015). Motivational interviewing: An evidence-based practice for improving student practice skills. *Journal Of Social Work Education, 51*(2).
- Howard, M. O., Allen-Meares, P., & Ruffolo, M. C. (2007). Teaching Evidence-Based Practice: Strategic and Pedagogical Recommendations for Schools of Social Work. *Research On Social Work Practice, 17*(5), 561-568. doi:10.1177/104973150730019!
- Imel, Z. E., Baldwin, S. A., Baer, J. S., Hartzler, B., Dunn, C., Rosengren, D. B., & Atkins, D. C. (2014). Evaluating therapist adherence in motivational interviewing by comparing

performance with standardized and real patients. *Journal of consulting and clinical psychology*, 82(3), 472.

Jensen, R. (2016). Behaviorism. *Salem Press Encyclopedia Of Health*,

Johnson, G. M. (2014). The ecology of interactive learning environments: situating traditional theory. *Interactive Learning Environments*, 22(3), 298-308.287-297.

Kahn, J. H., & Schneider, W. J. (2013). It's the Destination and It's the Journey: Using Multilevel Modeling to Assess Patterns of Change in Psychotherapy. *Journal Of Clinical Psychology*, 69(6), 543-570.

Lane, C., Hood, K., & Rollnick, S. (2008). Teaching motivational interviewing: using role play is as effective as using simulated patients. *Medical Education*, 42(6), 637-644.

Leffingwell, T. R. (2006). Motivational Interviewing Knowledge and Attitudes Test (MIKAT) for evaluation of training outcomes. *MINUET*, 13, 10-11.

Leijten, P., Shaw, D. S., Gardner, F., Wilson, M. N., Matthys, W., & Dishion, T. J. (2015). The Family Check-Up and service use in high-risk families of young children: A prevention strategy with a bridge to community-based treatment. *Prevention Science*, 16(3), 397-406.

Littell, J. H., & Girvin, H. (2004). Ready or not: Uses of the stages of change model in child welfare. *Child Welfare*, 83(4), 341.

Lundahl. (2010). A meta-analysis of motivational interviewing: Twenty-five years of empirical studies. *Research on Social Work Practice*, 20(2), 137-160.

doi:10.1177/1049731509347850

- Madson, M. B., Schumacher, J. A., Noble, J. J., & Bonnell, M. A. (2013). Teaching motivational interviewing to undergraduates: Evaluation of three approaches. *Teaching of Psychology, 40*(3), 242-245. doi:10.1177/00986283134877450
- Madson, M. B., Loignon, A. C., & Lane, C. (2009). Training in motivational interviewing: A systematic review. *Journal of Substance Abuse Treatment, 36*(1), 101-109. doi:10.1016/j.jsat.2008.05.005
- Mandrekar, J. N. (2011). Measures of Interrater Agreement. *Journal of Thoracic Oncology, 6*(1), 6-7. doi: <http://dx.doi.org/10.1097/JTO.0b013e318200f983>
- Manolis, C., Burns, D. J., Assudani, R., & Chinta, R. (2013). Assessing experiential learning styles: A methodological reconstruction and validation of the Kolb Learning Style Inventory. *Learning and Individual Differences, 23*, 44-52.
- Martino, S., Canning-Ball, M., Carroll, K. M., & Rounsaville, B. J. (2011). A criterion-based stepwise approach for training counselors in motivational interviewing. *Journal of Substance Abuse Treatment, 40*(4), 357-365. doi:10.1016/j.jsat.2010.12.004
- Merriam, S. B., & Bierema, L. L. (2014). *Adult learning. [electronic resource] linking theory and practice*. San Francisco, CA : Jossey-Bass, a Wiley brand, [2014].
- Miller, W. R. & Moyers, T. M. (2006). Eight stages in Motivational Interviewing. *Journal of Teaching in the Addictions, 5*(1), doi:10.1300/J188v0501_02
- Miller, W. R., & Moyers, T. B. (2015). The forest and the trees: relational and specific factors in addiction treatment. *Addiction, 110*(3), 401-413 13p. doi:10.1111/add.12693
- Miller, W. R., & Moyers, T. B. (2016). Asking better questions about clinical skills training. *Addiction, 111*(7), 1151-1152. doi:10.1111/add.13095

- Miller, W. R., & Rollnick, S. (2013). *Motivational interviewing: Helping people change*. Guilford Press; New York, New York.
- Miller, W.R., & Rollnick, S. (2014). The effectiveness and ineffectiveness of complex behavioral interventions: Impact of treatment fidelity. *Contemporary Clinical Trials* (37), 234-241.
- Miller, W. R., & Rose, G. S. (2009). Toward a theory of motivational interviewing. *American Psychologist*, 64(6), 527-537. doi:10.1037/a0016830
- Miller, W. R., Hendrickson, S. M., Venner, K., Bisonó, A., Daugherty, M., & Yahne, C. E. (2008). Cross-cultural training in motivational interviewing. *Journal of Teaching in the Addictions*, 7(1), 4-15.
- Miller, W. R., Yahne, C. E., Moyers, T. B., Martinez, J., & Pirritano, M. (2004). A Randomized Trial of Methods to Help Clinicians Learn Motivational Interviewing. *Journal Of Consulting And Clinical Psychology*, 72(6), 1050-1062. doi:10.1037/0022-006X.72.6.1050
- Mitchell, S., Heyden, N., Schroy, P., Andrew, S., Sadikova, E., & Wiecha, J. (2011). A pilot study of motivational interviewing training in a virtual world. *Journal of medical Internet research*, 13(3), e77.
- Misangyi, V. F., LePine, J. A., Algina, J., & Goeddeke Jr., F. (2006). The Adequacy of Repeated-Measures Regression for Multilevel Research. *Organizational Research Methods*, 9(1), 5-28.
- Moyers, T. B., Manuel, J. K., Wilson, P. G., Hendrickson, S. M., Talcott, W., & Durand, P. (2008). A randomized trial investigating training in motivational interviewing for

behavioral health providers. *Behavioural and Cognitive Psychotherapy*, 36(02), 149-162.
doi: 10.1017/S1352465807004055

Moyers, T.B., Manual, J.K., & Ernst, D. (2014). Motivational Interviewing Treatment Integrity Coding Manual 4.2.1. Unpublished manual *University of New Mexico, Albuquerque, NM*.

Moyers, T. B., Martin, T., Manuel, J. K., Miller, W. R., & Ernst, D. (2010). Revised global scales: Motivational interviewing treatment integrity 3.1. 1 (MITI 3.1. 1). *Unpublished manuscript, University of New Mexico, Albuquerque, NM*.

Moyers, T. B., & Miller, W. R. (2013). Is low therapist empathy toxic?. *Psychology Of Addictive Behaviors*, 27(3), 878-884. doi:10.1037/a0030274

Moyers, T. B., Rowell, L. N., Manuel, J. K., Ernst, D., & Houck, J. M. (2016). The Motivational Interviewing Treatment Integrity Code (MITI 4): Rationale, Preliminary Reliability and Validity. *Journal Of Substance Abuse Treatment*, 65(Motivational Interviewing in Substance Use Treatment), 36-42. doi:10.1016/j.jsat.2016.01.001

Najor-Durack, A. (2016). Evidence-based practice in social work curriculum: Faculty and field instructor attitudes. *Field Educator*, 6(2), 1-17.

Noordman, J., de Vet, E., van der Weijden, T., & van Dulmen, S. (2013). Motivational interviewing within the different stages of change: An analysis of practice nurse-patient consultations aimed at promoting a healthier lifestyle. *Social science & medicine*, 87, 60-67.

Olmstead, T., Carroll, K. M., Canning-Ball, M., & Martino, S. (2011). Cost and cost-effectiveness of three strategies for training clinicians in motivational interviewing. *Drug and alcohol dependence*, 116(1), 195-202.

- Parrish, D. E., & Oxhandler, H. K. (2015). Social work field instructors' views and implementation of evidence-based practice. *Journal Of Social Work Education, 51*(2), 270-286.
- Parent Child Interaction Therapy (n.d) *Initial therapist training*. Retrieved June 4th, 2016 from <http://www.pcit.org/initial-therapist-training.html>
- Pecukonis, E., Greeno, E., Hodorowicz, M., Park, H., Ting, L., Moyers, T.,... Wirt, C. (2016). Teaching motivational interviewing to child welfare social work students using live supervision and standardized clients: A randomized control trial. *Journal of the Society for Social Work and Research, 7*(3), 479- 505.
- Prochaska, J. O., DiClemente, C. C., & Norcross, J. C. (1992). In search of how people change: applications to addictive behaviors. *American psychologist, 47*(9), 1102.
- Roberts, A. R., & Yeager, K. (2006). *Foundations of evidence-based social work practice*. Oxford; New York : Oxford University Press, 2006
- Rubin, A., & Parrish, D. (2007). Challenges to the Future of Evidence-Based Practice in Social Work Education. *Journal Of Social Work Education, 43*(3), 405-428
- Rutherford-Hemming, T. (2012). Simulation Methodology in Nursing Education and Adult Learning Theory. *Adult Learning, 23*(3), 129-137
- Schwalbe, C. S., Oh, H. Y., & Zweben, A. (2014). Sustaining motivational interviewing: a meta-analysis of training studies. *Addiction, 109*(8), 1287-1294.
- Silovsky, J. F., Bard, D., Chaffin, M., Hecht, D., Burris, L., Owora, A., . . . Lutzker, J. (2011). Prevention of child maltreatment in high-risk rural families: A randomized clinical trial with child welfare outcomes. *Children and Youth Services Review, 33*(8), 1435-1444.
doi:10.1016/j.chilyouth.2011.04.023

- Simon, P., & Ward, N. L. (2014). An evaluation of training for lay providers in the use of Motivational Interviewing to promote academic achievement among urban youth. *Advances in School Mental Health Promotion*, 7(4), 255–270.
<http://doi.org/10.1080/1754730X.2014.949062>
- Smith, J.L; Carpenter, K.M., Amrhein, P.C., Brooks, A.C., Levin, D., Schreiber, E.A., Travaglini, L.A; Hu, Mei-Chen; Nunes, E.V. (2012). Training substance abuse clinicians in motivational interviewing using LS via teleconferencing. *Journal of Consulting and Clinical Psychology*, 80(3), 450-464. doi: 10.1037/a0028176
- Smith, D., Hohman, M., Wahab, S., & Manthey, T. (2017). Student-perceived quality of motivational interviewing training: A factor-analytic study. *Journal of the Society for Social Work and Research*, 8(1), 1-17.
- Strieder, F.H., Wade, K. Talbot, N., Tabor, M. Collins, K.S., (2014). Basic Intervention Strategies. In D. DePanfilis (Ed.), *Family Connections intervention manual: helping families meet the basic needs of their children*. (7th ed). (pp.83-98). Baltimore, MD: University of Maryland, Baltimore.
- Schreiber, L. M., & Valle, B. E. (2013). Social Constructivist Teaching Strategies in the Small Group Classroom. *Small Group Research*, 44(4), 395-411.
- Smith, J. D., Knoble, N. B., Zerr, A. A., Dishion, T. J., & Stormshak, E. A. (2014). Family check-up effects across diverse ethnic groups: Reducing early-adolescence antisocial behavior by reducing family conflict. *Journal of Clinical Child & Adolescent Psychology*, 43(3), 400-414. doi:10.1080/15374416.2014.888670

- Snyder, E. H., Lawrence, C., Weatherholt, T. N., & Nagy, P. (2012). The Benefits of Motivational Interviewing and Coaching for Improving the Practice of Comprehensive Family Assessments in Child Welfare. *Child Welfare, 91*(5), 9-36
- Tennille, J. A. (2014). An RCT of an evidence-based practice teaching model with the field instructor/social work intern dyad. *Dissertation Abstracts International Section A, 74*,
- Tracey , Diane H.; Morrow, Lesley Mandel (2012). Lenses on Reading, Second Edition : An Introduction to Theories and Models. Retrieved from <http://www.ebib.com>
- Triana, A. C., & Olson, M. (2013). Motivational Interviewing as a Pedagogical Approach in Behavioral Science Education:“Walking the Talk”. *The International Journal of Psychiatry in Medicine, 45*(4), 389-399.
- Tummons, J., Ingleby, E. (2014). A-Z Of Lifelong Learning. McGraw-Hill. New York New York Retrieved from <http://www.ebib.com>
- Van Wormer, K. (2007). Principles of Motivational Interviewing Geared to Stages of Change: A Pedagogical Challenge. *Journal Of Teaching In Social Work, 27*(1/2), 21.
doi:10.1300/J067v27n01_02
- Venner, K. L., & Verney, S. P. (2015). Motivational interviewing: Reduce student reluctance and increase engagement in learning multicultural concepts. *Professional Psychology: Research And Practice, 46*(2), 116-123. doi:10.1037/a0038856
- Wahab, S. (2005). Motivational Interviewing and Social Work Practice. *Journal Of Social Work, 5*(1), 45-60. doi:10.1177/1468017305051365
- Yeager, K. & Roberts, A.R. (2006). *Foundations of evidence-based social work practice*. Oxford University Press, USA.