MOTIVATIONAL INTERVIEWING WITH AT-RISK YOUTH (MARS)

MENTORING PROGRAM: A TARGETED BEHAVIORAL INTERVENTION FOR

STUDENTS IN ALTERNATIVE SETTINGS.

A Dissertation Presented to

the Faculty of the Graduate School

University of Missouri- Columbia

In Partial Fulfillment

of the Requirements for the Degree

Doctor of Philosophy

by

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JULY 2019

The undersigned, appointed by the Associate Vice Chancellor of the Office of Research and Graduate Studies, have examined the dissertation entitled

MOTIVATIONAL INTERVIEWING WITH AT-RISK YOUTH (MARS)

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STUDENTS IN ALTERNATIVE SETTINGS.

Presented by Lauren Henry, a candidate for the degree of Doctor of Philosophy, and hereby certify that, in their opinion, it is worthy of acceptance.

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DEDICATION

This dissertation is dedicated to the most influential person in my life, Tammie Henry. Perhaps it is ironic that the very tragedy you thought would be a barrier to becoming a good mom, well it made you an incredible one. When you lost of the ability to walk, God gave our family so much more. I will never forget those parallel bars. As a little girl, I asked you what they were for. "Well, Lauren, those are for when your mommy will walk again." Will. You said "Will." Twenty-eight years later, the same drive and determination fills your heart. It fills mine. I will always know I can accomplish anything if my faith and pursuit are constant. Mom, you taught this little girl how to be fearless in the face of adversity. You taught me to never give up. This dissertation is dedicated to you. Know that I started this Mentor program for children who also share your tenacity for life. Like you momma, they refuse to give up. And also like you, they have helped shape the person and professional I am today.

ACKNOWLEDGEMENTS

This dissertation would not have been possible without the Missouri Prevention Center. A family of academics who believe whole heartedly that together, with a little data and a lot of determination, we can change the world. Thank you to Wendy, a mentor who not only supported me, but a mentoring program that would go on to touch so many lives. Thank you to my MARS mentors and teachers who got involved, stayed invested, and advocated for our youth in Alternative Education. And finally, thank you to my students. Thank you for believing in yourself, as we always believed in you ❤️

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Abstract

The purpose this study was to examine the treatment effects of a research-based intervention for students in alternative education: The Motivational Interviewing with At-Risk Students (MARS) Mentoring Program. Specifically, treatment effects were expected to in social, emotional, behavioral, and academic performances. MARS Mentoring is a unique program founded in self efficacy strategies, specifically Motivational Interviewing paired with behavioral modification practices. The 10-week intervention was delivered school-wide to 48 students (grades K-12). Two behavioral alternative schools also participated in data collection, serving as non-intervention schools for comparison. Outcome measures included school disciplinary actions for students (out of school suspension, office discipline referrals, and minor classroom referrals), academic performance (Math and English grade means), student self-efficacy, and targeted protective factors for students in alternative settings (using the Alternative Education Tier-3 Assessment). Two sets of analyses are presented. First, unmanipulated data from one school receiving intervention and two non-intervention schools were evaluated using simple means comparisons. In addition, to control for potential sample bias, propensity score matching methods were employed using a nearest neighbor matching algorithm. Students receiving the MARS intervention demonstrated significant improvements in social, emotional, and behavioral outcomes by establishing consistent improvements across all data analytic methods. Preliminary results indicated significant academic improvements for students enrolled in MARS Mentoring, however the model did not support significance after propensity score matching. Further implication for practice and direction for future research based on the findings are discussed.

CHAPTER 1: INTRODUCTION

Statement of the Problem

Alternative schools are used for a variety of youth, most commonly, serving

students with special needs and as a placement for suspended and expelled students or as

an alternative to exclusionary discipline (Verdugo & Glenn, 2006). These placements are

important as students who are not successful in traditional school settings and do not

enroll in alternative education likely drop out altogether (Arcia, 2006). In recent years,

alternative education enrollment has been on the rise (Carver & Lewis, 2010). One

contributing factor for the increase of youth in these settings is a seemingly excessive use

of zero tolerance discipline policies (American Psychological Association Zero Tolerance

Task Force [APA], 2008; Martinez, 2009; Skiba & Rausch, 2006) creating a higher

demand for alternative settings for students with significant disciplinary concerns.

Schools are suspending and referring students for alternative placement at a higher rate

than districts can implement programs (Vanderhaar, et al., 2013) leaving the most

vulnerable students, the most disadvantaged students, and the students most in need of

intervention without appropriate support (Arcia, 2006; Brown, 2007; Kelly, 1993;

McNulty & Roseboro, 2009; Muñoz, 2004).

Effective alternative settings can bolster protective factors and combat existing

risk (Darling & Price, 2004; de la Ossa, 2005; Fairbrother, 2008; May & Copeland, 1998;

Poyrazli et al., 2008; Quinn et al., 2006; Saunders & Saunders, 2001; Washington, 2008),

however, both research and practice lack characterization of what makes an alternative

site "effective." With the absence of state or federal regulation (Vanderhaar, Petrosko, &

Munoz, 2013), alternative programs and procedures are far less regulated than those of

traditional school environments allowing the potential for sites to vary and deviate from best practices.

Current alternative education literature indicates that this area is understudied, that robust designs are limited and positive outcomes sustained overtime have yet to be evaluated. Virtually all aspects of alternative education need research, including the development and evaluation of interventions addressing needs specific to the population served in these settings (Atkins et al., 2005; Brown, 2007; Foley & Pang, 2006; Kelly, 1993; Kim & Taylor, 2008; Lehr & Lange, 2003; McNulty & Roseboro, 2009; Muñoz, 2004; Quinn et al., 2006; Warren, 2007). This study is intended to contribute to the growing evidence base for alternative education practice.

Development of evidenced-based practices for youth in alternative education settings is complex, as are the behaviors that often lead students to these placements. Behaviors are frequently entrenched and maintained over long periods of time. As such, it is imperative that supports and services that are offered in these settings be rooted in sound theory and evidence to facilitate significant improvements in academic, behavioral, social, and emotional profiles (Skiba, Arredondo, & Williams, 2014). More specifically, alternative schools need evidence-based interventions that target constructs associated with students' success in changing their current problematic school behaviors. Constructs including self-efficacy, self-regulation, and motivation of students (Caraway, Tucker, Reinke, & Hall, 2003). The MARS Mentoring Program was developed in an attempt to bring these best practices to Alternative Education.

Purpose of the Current Study

The purpose of this study was to evaluate the impact of the Motivational Interviewing with At-Risk Students (MARS) Mentoring Program with students enrolled in a behavioral alternative school placement. The study will investigate the following research questions:

Research Question 1: Did students attending an alternative school placement who received the MARS Mentoring intervention have more positive social, emotional, and behavioral outcomes than a matched comparison sample of students from a similar alternative school placement while controlling for baseline scores?

Hypothesis 1: It is hypothesized that students from the school participating in MARS will demonstrate a significant improvement on social, emotional, and behavioral competencies as evidenced by improved self-efficacy scores, improved teacher and student ratings on the Alternative Education Tier- 3 (AET-3) assessments, and fewer disciplinary actions in comparison to similar students from schools not participating in MARS.

Research Question 2: Did students attending an alternative school placement who received the MARS Mentoring intervention have more positive academic outcomes than a matched comparison sample of students from a similar alternative school placement?

Hypothesis 2: It is hypothesized that students participating in MARS will demonstrate a significant increase in academic performance as indicated by average grade improvement from the previous semester in the areas of Mathematics and English Language Arts in comparison to similar students from schools not participating in MARS.

CHAPTER II: LITERATURE REVIEW

This literature review discusses the purpose of alternative education, outcomes of students who do not have access to alternative education placements, the efficacy of alternative education programs, characteristics of students frequently placed in alternative programs, and the need for accountability and methodically sound research in alternative education today. Following this academic review, the Motivational Interviewing with At-Risk Students (MARS) Mentoring Program theoretical basis, intervention components, and program development contributions are reviewed. Lastly, the purpose of the current study is discussed.

The Purpose of Alternative Education

Exclusionary Discipline

Out of school suspension is one of the most frequently used punishments for rule violations in schools today (Sautner, 2001). In response to ongoing disruptive behavior, students across the country are being suspended and expelled at increasing rates, and zero tolerance policies continue to exacerbate this exclusionary practice (Brown et al, 2013). A key assumption of zero tolerance policy is that the removal of disruptive students will result in a safer climate for others (Ewing, 2000). Initially intended to deter students from bringing firearms or illicit drugs on school grounds (Skiba & Rausch, 2006), these policies became widely adopted in schools in the early 1990s as practice that mandates the application of predetermined consequences, most often severe and exclusionary in nature. The upsurge of zero tolerance as a rational for suspensions and expulsions without an increase of violent or drug-related offenses suggests the placement of students in alternative education per disciplinary action is becoming increasingly discretionary and

being extended to less serious violations of school codes of conduct and various other rule breaking behaviors (Keleher, 2000; McCreight, 1999). A report by the Hogg Foundation (2006) indicated that for the 2005-2006 school year in the state of Texas, 70% of alternative education placements were at the discretion of the school administration (one of the few states that publicly reports data). As exclusionary discipline becomes less and less regulated, the numbers of students lost in the process is disheartening.

The consequences of exclusionary discipline are tenfold. Students are denied access to their educational environment for a set period of time ranging from as little as a day to as long as a permanent expulsion (Blankenship & Bender, 2007). Few studies have examined the effectiveness of Out of School Suspensions (OSS) (Skiba, 2002). In fact, while suspension is used quite frequently as a disciplinary norm, not a great deal is known about its effects on student behavior as a whole (Blankenship & Bender, 2007). What recent studies have shown is that although exclusionary discipline has increased in schools, challenging behavior has also increased here. As such, the conclusion can be drawn that suspension and expulsion is not an effective practice, yet the use of exclusionary discipline continues to increase almost everywhere, dramatically so in some places (Arcia, 2006; Krezmien, Leone, & Achilles, 2006). Across secondary schools alone, an estimated two million students are suspended annually (Skiba, Shure, & Williams, 2012). Trends suggest that students are not only being suspended more frequently, but also earlier in their educational experience. Reports including elementary statistics estimate that between 2002 and 2006, out of school suspensions increased by 250,000 and expulsions by 15%, representing 3.3 million students suspended from school

at least once and 102,000 expelled in a single year (Dignity in Schools Campaign, 2015). That is a suspension rate doubling since 1974 (Planty, 2009).

Outcomes for the Suspended Students

For the suspended student not placed at an alternative setting, the likelihood of negative life outcomes increases dramatically (Lochner & Moretti, 2002). Suspensions can diminish academic achievement in students. Even when controlling for race and poverty, researchers continue to find that high-suspending districts have worse outcomes on standardized tests (Owens, Wettach, & Hoffman, 2015). The more time a student is in school and engaged with learning, the higher that student's overall academic achievement and repeated suspensions make it difficult for a student to keep up with the curriculum, complete assignments and advance from one grade to the next (Sherbo-Huggins, 2007).

Suspensions and expulsions start a negative spiral of lost instructional time, disengagement, resentment, deviant behavior, and lower academic achievement (Arcia, 2006; Brown, 2007; Edmonds-Cady & Hock, 2008; Kelly, 1993; McNulty & Roseboro, 2009). Brown's (2007) study revealed most suspensions and expulsions resulted in significant lost instructional time. For the 37 students surveyed in this study, the lost instructional time conservatively totaled over 6 years. Students interviewed felt suspensions and expulsions were arbitrarily issued, happened more often than necessary, and were frequently an unreasonable punishment for the offense. Brown (2007) found that the more suspensions or expulsions received, the more students perceived adults at their schools did not care about them.

Researchers continue to find strong connections between long term suspension and the likelihood of dropping out of school. For example, suspension rates in 196

Kentucky schools were significantly positively correlated with dropout rates (Christle, Jolivette, & Nelson, 2007). At the individual-student level, a study using data from 30,000 high school sophomores found that students who dropped out of school were more likely to have a history of suspension (Eckstrom, Goertz, Pollack, & Rock, 1986). Individuals who do not earn a high school diploma are at greater risk for poor health outcomes and unemployment and have a higher likelihood of entering into the juvenile and criminal justice system (DePaoli elt al, 2015). For boys suspended 10 days or more, Shollenberger (2015) found that less than half had obtained a high school diploma by their late 20s; more than three in four had been arrested; and more than one in three had been sentenced to confinement in a correctional facility.

Alternative Education creates the opportunity for a different story. By providing support to address risk and promote resilience, these placements have the potential to return students on a path to graduation and positive life outcomes. However, many alternative placements are perceived as punishment, and not as an intervention to help students. This perspective likely contributes to the pervasive lack of motivation and locus of control found among students in alternative programs. As so, alternative schools are often stigmatized as a sentence to confinement from others rather than places to support and educate (Brown, 2007; Lehr et al., 2009; McNulty & Roseboro, 2009).

Types of Alternative Education

Researchers, educators, and policy makers debate the current rationale for alternative schools (Quinn et al., 2006). There is no consensus on a standard definition of alternative education (Aron, 2006). The US Department of Education declares alternative education's purpose as serving students who are "at-risk" of academic failure indicated

by poor grades, truancy, disruptive behavior, pregnancy, or similar factors associated with temporary or permanent withdrawal from school and whose needs cannot be met in regular schools. (Carver & Lewis, 2010). Most of the states with formal laws or policies define alternative schools as being for at-risk students who are served in settings separate from the general education classroom. Similarly to the definition provided by the U.S. Department of Education, there is some consensus on the definition in that alternative schools are more or less a broad strategy that can be used to prevent students from dropping out of school altogether.

Dropout prevention is a broad and idealistic version of what alternative schools should strive to accomplish. Realistically, researchers are beginning to ask the important question of who or what do alternative schools currently exist to serve: Their enrolled students? Or the traditional schools by removing disruptive students from classrooms (Kelly, 1993; Kim & Taylor, 2008; Lehr et al., 2009)? Kelly (1993) identified four institutional roles played by alternative schools. First, they function as a "safety net", serving students not succeeding in their traditional school. Second, they are a "safety valve", operating to serve the comprehensive school system by removing students who are disruptive. The third role, according to Kelly, is to "cool-out" students. This, essentially, was a systematic way to allow the student to fail. Students are sent to a less academically rigorous schools. Attendance and specific behaviors are valued over academic performance. Either students meet behavior and attendance requirements, or they slowly leave the system through a phased probationary process.

Around the same time, Raywid (1994) also questioned whether alternative education primarily assisted students, schools, or school districts. She identified three

types of alternative programs. Type I are schools of choice, usually popular schools with programmatic themes. These schools resemble Magnet Schools, and often emphasize a curricular focus or instructional strategy. Type II schools receive students via ongoing problematic behaviors, suspension, expulsion and/or the courts. Often labeled "Last-Chance" or "Second-Chance" placements, Type II schools focus heavily on behavior modification. Type III schools have a remedial focus, helping students catch up, and thus enabling a return to their regular school. Traditional schools refer students to Type III programs for academic, social, and emotional help. Most alternative schools, as defined almost twenty years later by Carver and Lewis (2010), are a mix of Raywid's (1994) classification of Type II and Type III.

Osher and Huff's (2006) launched an investigation into the types of alternative schools. Survey respondents were asked to choose from a list of statements that most closely described the alternative schools in their state. Just over half of the states described alternative schools as educational settings designed to prevent at-risk students from dropping out of school. More than a third of the states indicated that alternative schools in their states served as a disciplinary consequence for students. Similarly, the District Survey of Alternative Programs and Schools conducted by the National Center on Education Statistics (NCES, 2001) reported that 39% of public school districts administered at least one alternative school or program for at-risk students during the 2000-2001 school year. Lehr et al. (2009) synthesized data gathered from a 48 state review of legislation and policy documents, and a national survey about alternative schools completed by state Departments of Education. Their findings noted a growing use of alternative schools to serve students who have been suspended, expelled, or

removed from their regular schools for disruptive behavior. More specifically, alternative schools serving students based on behavioral needs could be subcategorized into three levels of severity/types of alternative programing: (1) students at risk of school failure, (2) students who were disruptive or had behavior problems and (3) students who had been suspended or expelled (Lehr et al, 2009).

The Alternative Education Population

Alternative schools most often serve students who are at risk of school failure or have already been suspended or expelled or who are in the juvenile justice system (Foley & Pang, 2006; Lehr & Lange, 2003). As so, students enrolled in alternative schools often have a history of academic failure and behavioral disruptions that impede their learning. They are more likely to exhibit higher rates of course failure, engage in physical altercations, be involved in alcohol- or drug-related issues, and display disruptive verbal behavior than their peers (Kleiner, Porch, & Farris, 2002). In their nationwide Youth Risk Behavior Survey (YRBS) of students in alternative schools, Grunbaum and colleagues (2000) reported similar findings indicating that students in alternative education had significantly more high-risk behaviors compared to students attending traditional schools. They were significantly more likely to smoke cigarettes, drink alcohol, use marijuana, use cocaine, or carry a weapon. They are also more likely to participate in physical fights, attempt suicide, drive under the influence, and have sex with multiple partners (Grunbaum et al., 2000; Lange & Sletten, 2002; Escobar-Chavez, et al., 2002).

Th majority of alternative education settings currently serve students in grades nine through 12. Lehr and colleagues (2009) found in their evaluation of 20 states, 94% of the respondents indicated that alternative settings in their state serve secondary-level

students. This is congruent with the age characteristics of suspended students. The researchers also found a new trend of alternative education settings increasingly serving students in Grades K through 5 (60% of the 20 state sample; Lehr, Tan, & Ysseldyke, 2009), a likely response to students being suspended earlier in their educational careers.

Disproportionality in Alternative Schools

The majority of students enrolled in the studied alternative programs were students of color, students with lower family income, (Brown, 2007; Daniels & Arapostathis, 2005; Fairbrother, 2008; Kelly, 1993; Loutzenheiser, 2002; May & Copeland, 1998; Smith, 2003), and students with disabilities (Edmonds-Cady & Hock, 2008; Foley & Pang, 2006; Lehr & Lange, 2003; Loutzenheiser, 2002; Smith, 2003). Several studies have found minority students in alternative programs are disproportionately represented when compared to the demographics of their community or regular school (Brown, 2007; Daniels & Arapostathis, 2005; Fairbrother, 2008; Kelly, 1993; Loutzenheiser, 2002; May & Copeland, 1998; Smith, 2003). For instance, Booker and Mitchell (2011) found that minority students were significantly more likely than their White peers to be placed in disciplinary alternative education for discretionary reasons, and that they were more likely to return to the alternative programs once they had been accepted back to their regular school. Students were also disproportionately male, which is consistent with research showing males are more likely to be expelled than females (Skiba, Michael, Nardo, & Peterson, 2002; U.S. Department of Education, Office Of Civil Rights, 2012).

Students with disabilities are also disproportionately represented in alternative school settings (EdmondsCady & Hock, 2008; Foley & Pang, 2006; Lehr & Lange, 2003;

Loutzenheiser, 2002; Smith, 2003). Nearly 90% of students attending alternative

education sites are classified as having an emotional disturbance (ED) (Gagnon, Van

Loan, & Barber, 2011). The National Longitudinal Transition Study (Wagner & Davis,

2006) found that more students with ED's are educated in alternative settings than any

other disability group.

The Efficacy of Alternative Programs

Through the handful of evaluations on alternative educational placements,

successful programs with improved social, emotional, and academic outcomes

consistently maintained a more narrowed focus and dedicated attention and resources to

specific skill building of pro-social factors (Osher et al, 2008; Conley, 2002; Lehr et al,

2009; Lange and Lehr, 2003; May and Copeland, 1998; Gold and Mann, 1984). The

studies by Lange and Lehr (2003) and Gold and Mann (1984) highlight the success of

alternative educational programs in meeting students' needs for positive peer and adult

relationships. Students in the Gold and Mann study reported more personal contacts with

peers and teachers than their counterparts in traditional high schools. Likewise, Lange

and Lehr (2003) found that students reported more positive relationships with teachers

than at-risk students in comparison high schools. May and Copeland (1998) inquiry of

students in three mid-western alternative programs found that positive relationships in the

program were among the top reasons students gave for their attendance and engagement

at school. Other skills addressed by alternative schools with significant positive

outcomes across academic, social, and emotional profiles include social communication,

goal setting, problem solving, and conflict resolution (Osher, Sidana, & Kelly, 2008;

Conley, 2002; Lehr, Tan, &Ysseldyke, 2009, Osher, & Huff, 2006; Carver, Lewis, &

Tice, 2010).

Although these studies did not measure student academic achievement, they did

identify program characteristics positively correlated with student achievement in

traditional schools (Atkins et al., 2005; Quinn, Poinier, Faller, Gable, & Tonelson, 2006;

Saunders & Saunders, 2001). In contrast, Warren (2007) stated, "research on effective

alternative programs in California or other states is almost nonexistent" (p. 14). This call

to action is echoed across alternative education researchers, Atkins, Bullis, and Todis

(2005), Foley and Pang (2006), Lehr and Lang (2003), Lehr, Tan, and Ysseldyke (2009),

and Quinn, Poinier, Faller, Gable, and Tonelson (2006), who call for further research in

all aspects of alternative education, emphasizing the need for research on student

outcomes.

Student achievement data for alternative schools across most domains is lacking

(Atkins et al., 2005; Foley & Pang, 2006; Lehr et al., 2009; Quinn et al., 2006). Research

in alternative placements have been continuously scrutinized for lack of experimentally-

sound evidence of effectiveness and criticized because of poor evaluation methodology,

including the use of internal evaluators, no comparison or control groups, focus on short-

term outcomes, and difficulty generalizing from many individual evaluations (Cox,

Davidson, & Bynum, 1995). Research published thus far has primarily used quantitative

survey data conducted in cross case, statewide, or national studies. These surveys have

mostly targeted organizational definitions, policies, and trends. The remaining qualitative

studies have been primarily descriptive studies focused on policy, procedures,

curriculum, and general environment. Overall, there is little research on the efficacy of specific alternative school practices.

With few regulations and variable resources, evaluations of alternative schools produce mixed results (Hemmer, Madsen, & Torres, 2013). For instance, in a meta-analysis of 57 studies Cox, Davidson, and Bynum (1995) found that alternative education programs do have a small overall positive effect on school performance, attitudes toward school, and self-esteem; however, these studies mostly consisted of simple program evaluations and were not always consistent reporting results.

Research on Alternative Education

In order for alternative education to find an effective place within the educational system, there must be a larger emphasis on quantifiable short and long-term outcomes. Only 19 of 36 states indicated their department of education had a system in place documenting outcomes for students who attend alternative schools. Of the 19 states that did report outcome data, only seven produced findings post program graduation, and zero followed students who transitioned back into regular education even though surveys indicated that 64% of students did return back to the traditional education setting (Lehr, Tan, & Ysseldyke, 2009). One of the very few evaluations that followed students back into their home school, although for a limited time, actually reported negative academic results for students who returned to the conventional setting after attending alternative schools for a short period of time (Carruthers & Baenen, 1997). This emphasizes the importance of initial assessment and ongoing monitoring to assess what concerns should be addressed, in what order, and with how much intensity (Lehr, Tan, & Ysseldyke, 2009).

An alternative school in Maryland, acknowledging the need for effective alternative programs, recently embarked on a $1.8 million project for the state's first alternative school. The school is designed for disruptive and aggressive middle-school students. These students return to their conventional schools after a minimum stay of three months at the alternative placement where, along with typical schoolwork, the students are taught ways to manage their behavior (Quinn & Poirier 2006; Gold & Mann, 1984). With no initial evaluation or assessment throughout the program, any validity of program effectiveness is impossible to determine, let alone replicate.

Although there are many alternative schools serving at-risk students well, examples of struggling alternative schools also abound. Questions about the effectiveness of the district's alternative schools have recently been raised (Zaleska, 2010). In Philadelphia disciplinary alternative schools, only 13% of the students graduate. In Denver, 13 of the school district's 15 alternative schools failed to receive a passing district rating (Mitchell, 2009). Muñoz (2010) conducted an ethnographic case study of an alternative school in Los Angeles where he established that although learning did occur, very few students graduated, returned to their traditional school, or continued their education.

Alternative school characteristics (e.g., smaller class sizes, the availability of remedial education, student-centered curricula, flexible scheduling) are tailored to better support students with challenges (Kleiner et al., 2002), but these modifications alone may not be enough to improve the challenging behaviors that students in this setting often present. The continuation of challenging behaviors may be attributed to the overuse of reactive and punitive behavioral approaches in these settings and exacerbated by the

underuse of evidence-based behavioral interventions (Gagnon & Barber, 2015). These factors are often coupled with the effects of negative peer interactions (i.e., students' social and behavioral challenges being socially reinforced by peers) and may prohibit students from acquiring productive academic and behavioral skills (Reinke & Walker, 2006). However, educators may address the various challenges and needs of students in residential schools by effectively identifying and implementing evidence-based practices to reduce problem behaviors.

Studies documenting academic outcomes for students attending alternative schools have often indicated mixed results. A review of available studies examining academic outcomes showed little or no change or a decline on standardized tests over the course of a school year (Carruthers & Baenen, 1997; Lange & Lehr, 2003). Some research does suggest students attending alternative education settings show an increase in positive peer relationships, commitment to school, and school performance (Cox, Davidson, & Bynum, 1995; Gold & Mann, 1984; May & Copeland, 1998; Ruzzi & Kraemer, 2006), however, there is much criticism of the studies providing this evidence including lack of rigor, generalization, and attention to long-term results (Cox, Davidson, & Bynum, 1995; Ruzzi & Kraemer, 2006).

At the school level, there are often insufficient data available on alternative school outcomes with which to assess the effectiveness of their educational services. Only 35% of the districts reported having a data management system to track students after they leave alternative settings (Carver et al, 2010). Because of this, it is difficult to know how alternative educational placements influence students from an outcomes-based perspective. In the few investigations that did follow students post alternative placement,

researchers found negative academic and behavioral outcomes (Carruthers & Baenen, 1997; Gold & Mann, 1984). In order for alternative education to find an effective place within the educational system, there must be a larger emphasis on measurable short and long term outcomes and the use of valid assessment tools that evaluate meaningful change.

Lange and Sletten (2002) acknowledge this gap in research and pose perhaps the most important question: "What are the roles of screening and identification of individual intervention strategies in alternative settings?" (pg. 28). In addition to attending to non-academic outcomes, because of the nature of the students who access alternative education, it may be necessary to track outcomes for these students over a much longer period of time (Lange and Sletten, 2002). Lehr et al (2009) note the difficulty in evaluating the alternative school population, "determining the impact of alternative schools on students who attend them is difficult, as the population is at risk and measuring academic progress alone may not capture the settings' influence on youth who attend these schools and programs" (pg. 21). The researchers go on to question how student progress is evaluated and what indicators are of importance to measure. Are we developing skills and building upon pro-social factors within students in these alternative placements for them to generalize as they return to a traditional educational placement or are we manipulating their surroundings just enough for a short period of time?

The Need for Alternative Education

Additional alternative programs are needed in order to meet the needs of students who have challenging behaviors (Geiger, 2000). Alternative Educational placements work to ensure all children have the opportunity to receive an education while addressing

the rehabilitation of their social, emotional, and behavioral well-being (Osher, & Huff, 2006). Because of the ongoing rise in suspension and expulsion nationwide, the importance of alternative education is more pressing than ever (Reed, 1996; Lehr, Tan & Ysseldyke, 2009; Dupper, 2008; CDC, 2002). Numbers of students referred to alternative education continue to rise. Not only is the overall alternative education population growing dramatically, so is the range of ages and grades. The majority of these schools and programs currently serve students grade 9 through 12; however, there has been a significant increase in alternative schools serving students at younger ages with 20 states hosting elementary students grades 1 through 5 (Lehr et al, 2014). A nationwide survey of alternative schools and programs for children at risk conducted by the United States Department of Education indicated that there is a shortage of schools to meet the need. Furthermore, 54% of existing disciplinary alternative schools had exceeded maximum enrollment capacity during the 1999, 2000, and 2001 school years (Kleiner, Porch, & Farris, 2002).

Summary of Alternative Education

Alternative Education placements are often viewed as schools for the students whom the conventional schools have given up (Gregory, 2001). Although no standard definition for alternative education exists, in recent years the definition intentionally narrowed to schools serving students labeled "at-risk" of academic failure (Aron, 2006). A large and growing percentage of alternative schools are now places where students are sent, rather than places students or guardians choose for youth to attend (Carver & Lewis, 2010). Regardless of the motivation behind alternative education placements, these schools and programs are given the responsibility of providing a different educational

experience for students who are not succeeding in the traditional school setting. Students in these settings have an extensive history exhibiting more challenging behaviors as compared to their peers in traditional schools (Gagnon & Barber, 2015), and so require interventions in a non-traditional setting that help them modify their behavior. Although the outcomes of student attending alternative programs is grossly under-evaluated and intervention efforts for this targeted population is limited, the number of students referred to alternative education placements in the United States continues to rise dramatically (Foley & Pang, 2006; Kim & Taylor, 2008; Lehr & Lange, 2003) suggesting a need for research into best practices for alternative education supports.

Theories of Risk and Resilience

Upon entry into alternative schools, students are considered to be at-risk or in-risk. What is often less considered is the complexity of this risk. Patterson and colleagues proposed an interactional perspective that views antisocial behavior as the outcome of negative parenting practices and environmental experiences (1998). According to this theory, the first few years of development help to condition the child for future aggressive behaviors. A negative coercion cycle between parent and child asserts aggression as the primary means to avoid or control aversive circumstance. A reciprocal reinforcement process maintaining the negative relationship between the parent and the child begins to also shape other working models of relationships (Patterson, 1998). This model prompts the child to expect punishment, conflict, and rejection from those outside the coercive parenting relationship, such as teachers and peers. When students are met with rejection from peers and identified as a "behavior problem" by teachers, the child's working model of coercive relationships is solidified

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(Patterson, 1992). These negative relationships will continue to influence the development of the child across multiple settings.

Children with this working model of rejection in relationships are also deficient in a number of social cognitive skills, including appropriate navigation of peer group dynamics and interpretation of prosocial interactions (Asarnow & Calan, 1985; Dodge, 1986; Putallaz, 1983). In addition to social insufficiencies, children experiencing rejection are more likely to experience academic failure (Patterson, 1998). Academic failure therein leads to school alienation and loss of motivation. Teachers and other students often view uncommitted and disaffected students more negatively which can further increase alienation (Heimer & Matsueda, 1997). The combination of academic failure and further rejection by peers and teachers draw these youth to one another. They become prime targets for selection into peer groups of other alienated and antisocial students (Dishion, Patterson, Stoolmiller, & Skinner, 1991). As schools push away these students, they find peer groups with values that support delinquent antisocial acts. If alternative schools are not conscious, they can become active facilitators of deviant peer groups.

Student behaviors are not just a reflection of one incident or one year, but according to Patterson and colleagues (1992) these students have been on this trajectory since childhood with environmental factors feeding into the delinquency. Children considered to have ongoing antisocial behavior will likely manifest it through their career in school if left unattended (Moffitt, 1993). In the absence of effective assessment and intervention, this group of young people represents the most serious at risk youth across categories.

Alternative schools are places in which concentrated efforts to build the characteristics and skills are necessary for young people to overcome risk factors, and change trajectories toward success in school and society. Although many prevention and intervention programs occur in schools, limited research has investigated alternative school environments as avenues to treatment. Existing theories and research tend to focus on risk factors that children bring to the classroom (Dishion et al., 1997; Patterson et al., 1992). The risk, however complex, can be mapped out and adequately understood. What demands more of our focus is the theoretical understanding of student protective factors promoting strength and resiliency against known risk.

A resiliency framework aims to counter risk by orienting researchers and practitioners to positive factors in students' lives that become the focus of change strategies (Zimmerman, 2013). Resiliency theory is an emerging theoretical perspective that has been developed within developmental psychopathology and ecosystems perspectives and is influenced by stress and coping theories. Resiliency theory can be viewed as a dynamic process focusing on positive adaptation within the context of risk or adversity (Luthar, Cicchetti, & Becker, 2000) and also the ability to cope with this adversity in a manner that results in the identification, development, and strengthening of resilient qualities or protective factors (Richardson, 2002). Thus, resilience is conceptualized as relative resistance to psychosocial stressors or adversity.

Resiliency theory provides a conceptual framework for considering a strengths-based approach to understanding child and adolescent development and informing intervention design (Fergus & Zimmerman, 2005; Zimmerman & Brenner, 2010). Resiliency theory focuses attention on positive contextual, social, and individual

variables that can disrupt developmental trajectories from risk and negative life

outcomes. These positive contextual, social, and individual variables are

called promotive or protective factors (Fergus & Zimmerman, 2005) and can operate in a

counteraction to risk factors.

A protective factor is most commonly understood as some sort of characteristic at

the biological, psychological, family, or community level that can lower likelihood of

negative outcomes and/or that reduces impact of known risk (O'Connell & Warner,

2009). Some risk and protective factors are static or fixed, meaning they do not change

over time. Other risk and protective factors are considered variable, and can be

manipulated. The protective factor model suggests that protective factors can modify the

relationship between a risk and outcomes by acting as a "buffer" to the effects of risk

exposure.

Alternative education sites often operate under the assumption that long-term

positive outcomes related to health, school success, and successful transitions to

adulthood occur as the result of single interventions, meaning too often alternative

schools offer intervention on risk factors alone. The protective factor model operates

from another perspective. Focusing on protective factors offers a way to support at-risk

youth by increasing resilience through the development of skills, personal characteristics,

knowledge, and opportunities for practice. One established, protective factors offset risk

exposure and contribute to improved well- being and positive outcomes in the long term.

In this sense, protective factors can be used as a method to monitor for progress over time

towards the desired impacts that may not be realized for many years.

Development of a Research-Based Intervention for Students in Alternative

Education School Settings.

Given the lack of rigorous evidence of effectiveness of alternative school settings and need for more structured intervention tied to the specific needs of the students in these settings, we developed the Motivational Interviewing with At-Risk Students (MARS) Mentoring Program. The purpose of the MARS Mentoring program was to address the unique need of students in alternative education placements who continued to be unresponsive to behavioral interventions in prior settings. The MARS Mentoring program takes in to consideration current alternative education research, identifying specific needs of students through a model fostering self-efficacy and self-control and shaping new positive behaviors.

Hypothesized mechanisms underlying the impact of MARS is guided by the integration of two well-established theories, self-determination theory (Deci & Ryan, 1985, 2011) and operant conditioning theory, specifically behavior modification (Skinner,1938, 1953). The MARS Program also utilizes the evidenced-based approach Motivational Interviewing (Miller & Rollnick, 2012).

Self-Determination Theory

Most students arrive at alternative schools disengaged from the educational system. These students are often described as unmotivated, implying that they bring very little energy or commitment to their academic activities. Understanding student self-regulation and motivation are therefore central to the promotion of positive student outcomes in alternative education. The MARS Mentoring Intervention is guided by Self-Determination Theory (SDT) (Deci & Ryan, 2000). SDT suggests that humans have three

basic psychological needs and that we strive, consciously or unconsciously, toward situations that support the satisfaction of these needs. The three needs are autonomy – feeling ownership for choices and behaviors, competence- feeling effective, and relatedness – feeling connected to others. If a child's environment satisfies these needs, it can support engagement in and mastery of skills and concepts within it (Deci & Ryan, 2000). Substantial research has linked autonomy, competence, and relatedness to student classroom behavior, academic achievement, cognitive learning, and persistence in school (Brokelman, 2009; Hardre & Reeve, 2003; Ryzin, Gravely, & Roseth, 2007). This is true across gender, age, and cultures (Chirkov, 2009; Guay, Ratelle, & Chanal, 2008; Jang, Reeve, Ryan, & Kim, 2009; Sheldon, Abad, & Omolie, 2009; Shih, 2008). Support of these basic psychological needs has been correlated to intrinsic motivation, which in turn has been associated with student engagement and academic achievement (Niemiec & Ryan, 2009; Ryzin et al., 2007). SDT places particular emphasis on support for autonomy, recognizing that the behaviors of those supporting students either encourage or hinder student perceived autonomy satisfaction and intrinsic motivation (Niemiec & Ryan, 2009). The MARS Mentoring program provides structure to interventionists in facilitating autonomy support for youth.

Autonomy. Autonomy refers to being the source of one's own decisions and behavior. When the need for autonomy is satisfied, individuals feel they are acting in a way consistent with their values and interest, even when outside influences are present. Autonomy is often thought as synonymous with independence and therefore in opposition to structure. However, a person can autonomously act on requested behaviors if the requests are consistent with the individual's values and beliefs. It is equally

possible for someone to rely on others for opinions or directions and still not satisfy their

need for autonomy (Ryan & Deci, 2002). Research has linked students' perceived

autonomy satisfaction to academic achievement (Brokelman, 2009; Jang et al., 2009;

Miserandino, 1996) and well-being (Gillison, Standage, & Skevington, 2008; Ryzin et

al., 2007; Sheldon et al., 2009). Students in alternative schools may feel that their innate

need for autonomy conflicts with schools' embedded system of control.

Authority figures who promote, respect, and enable opportunities for students to

practice self-management skills engage in autonomy support (Eccles &Wigfield, 2002;

Field et al., 1998; Ryan & Deci, 2000). Autonomy support promotes student choice,

directly involves students, and increases practice opportunities—necessary ingredients to

facilitate student acquisition and integration of social emotional learning skills (Wigfield,

Eccles, Roeser, & Schiefele, 2008; Wigfield, Eccles, Schiefele, Roeser, & Davis-Kean,

2007). In addition, autonomy support has been shown to facilitate improved peer and

student-teacher relationships (O'Connell et al., 2009; Wentzel,2002; Wentzel, Filisetti, &

Looney, 2007). When educators use autonomy support strategies, students are more

likely to be motivated to adopt expected behaviors (Pintrich & Schunk, 2002). Autonomy

support is a key mechanism integrated into the MARS Mentoring Program. Mentors are

trained to promote the student as the "expert" and join in a collaborative, not directive,

relationship with the youth.

Competence. Competence refers to feeling effective and encourages people to

seek experiences that align with their capabilities. Competence is not attained through

acquiring skills and knowledge, but rather a feeling of confidence in skills being a

reasonable match for the challenges of the task at hand. A progression towards

competence drives people to practice and capabilities are attained and improved through practice (Ryan & Deci, 2002). In educational settings, student perceived competence has been associated with academic achievement (Brokelman, 2009; Jang et al., 2009; Miserandino, 1996), well-being (Sheldon et al., 2009) and persistence (Lavigne, Vallerand, & Miquelon, 2007).

Relatedness. Relatedness is the feeling of being connected to others. It includes both being cared for and caring for others. In alternative education research, relatedness is referred to as a "sense of belonging" (Poyrazli et al., 2008; Saunders & Saunders, 2001). Relatedness is not connected with status or position but rather with feeling a sense of security, being in relationships with others, and experiencing empathy across contexts. It is concerned with being both accepted by others and accepting of others (Ryan & Deci, 2002). Students' perceived relatedness satisfaction has been correlated with well-being (Gillison et al., 2008; Ryzin et al., 2007; Sheldon et al., 2009), academic achievement (Brokelman, 2009) and more satisfying learning experiences (Jang et al., 2009).

Locus of Control. Students enrolled in alternative education programs often experience a more external locus of control compared to students attending traditional schools. Students believe their achievements or failures are determined by external factors and self report feeling they are being controlled, as opposed to being in control of their behavior (Miller, Fitch, & Marshall, 2003). Programs that foster a feeling of self-control are an important consideration for alternative schools (Miller et al., 2003). Students in alternative placements often face daily turmoil which can create a feeling of helplessness and can create the perception that they do not have personal control over any behavior or circumstance. Miller and colleagues emphasize that it is the responsibility of

a respected mentor to help these students develop an improved perception of control (2003).

Klassen & Usher (2010) identified alternative schools as settings that can become the model for behavioral intervention if they are first successful in fostering an environment of self-efficacy and self-control. Self-efficacy influences factors such as academic motivation, study behavior, and learning outcomes (Bandura, 1997; Bong & Skaalvik, 2003; Schunk, 2001). There is a need for programs to create a sense of responsibility in the students and this is more likely to be accomplished through systemic intervention (Klassen & Usher, 2010). Not only should the systemic intervention teach internal control, but we must introduce flexible strategies and participatory academic activities to help students achieve successful learning. The Self-Determination Leadership Model of Implementation and Motivational Interviewing are two evidenced-based strategies that address these areas of need specific to students attending alternative education placements.

Self-determination Leadership Model of Instruction (SDLMI) Framework. Strategies and interventions to teach self-determination have been used to address a number of problem behaviors (e.g., off-task behavior, avoidance, verbal or physical aggression, class disruption) across many disability categories (e.g., intellectual disability, learning disabilities, ED; Cobb, Lehmann, Newman-Gonchar, & Alwell, 2009). Some of the benefits associated with teaching self-determination skills may also be due to influential adults taking a proactive and intentional role in students' educational aspirations and attitudes toward school. Students who have acquired and developed self-determination skills have enhanced academic performance (Mooney, Ryan, Uhing, Reid,

& Epstein, 2005), improved school behavior (Cobb et al., 2009), and increased on-task, problem-solving, and goal-attainment behaviors (Kelly & Shogren, 2014).

One means of increasing student self-determination is through the implementation of the Self-determination Leadership Model of Intervention (SDLMI) framework (Wehmeyer, Palmer, Agran, Mithaug, & Martin, 2000). The three-phase instructional model asks students to respond to a series of problem-solving questions that serve to help them set self-selected goals and create plans to attain those goals (Kelly & Shogren, 2014). Students with and without disabilities engaged in SDLMI instruction have demonstrated increased self-determined behaviors after exposure to the model (Lee, Wehmeyer, & Shogren, 2015). The model requires students to answer questions in a specified sequence in order to move them from their current state of performance to a goal state, in which they are ready to pursue and attain goals. Phase questions help students identify barriers and facilitators to success and serve to prepare them to effectively navigate the process of attaining goals. Students who participate in this model of instruction learn component skills (i.e., goal setting, problem solving, self-expression, progress monitoring, etc.) of self-determination with support and are more likely to become self-directed learners (Kelly & Shogren, 2014; Lee et al., 2015; Mazzotti, Test, & Wood, 2013). The SDLMI framework is presented through a modular format in the MARS Mentoring curriculum.

MARS: Self-Determined Leadership Model of Instruction

Step One What is my Goal?

Goal setting is the process of identifying wants and needs and making a decision to attain those goals. Teaching students to set goals is a crucial component of promoting self-determination. This may be especially true for students in alternative placements

schools who have experienced many challenges with attaining positive academic and behavioral outcomes. Traditional interventions often include goals that are teacher selected or school based. However, encouraging students to self-select goals as part of the MARS program allows them to transition from more adult-directed to student-directed learning. The intervention component utilizes SMART goals or those that are Specific, Measurable, Action-Oriented, Realistic, and Time Sensitive. Mentors objectives during this stage include encouraging students to identify specific strengths and needs. The MARS program helps identify strengths and weaknesses by asking the student to think critically and provide examples of personal experiences of each. See MARS example in Appendix A and Appendix B

During this stage, Mentors model for students how to prioritize needs, specifically empowering students to communicate preferences, interests, beliefs, and values. Mentors conduct a "Value Card Sort," a systematic activity to establish students most important values in a short amount of time (Herman, Reinke, Frey, & Shepard, 2014). This engaging, self-evaluative activity often evokes strong emotions, passions, and interest in changing, growing, and learning. See MARS example in Appendix C.

This stage is also dedicated to assist students in gathering information about opportunities and perceived barriers in their environments. Students are encouraged to critically evaluate what they are currently doing to help or hurt their ability to reach goals. Subsequently, mentors support students in considering what actions can be taken toward capacity building, modifying the environment, or both. Students become an active participant in creating and identifying criteria for achieving goals.

Step Two: What is my Plan?

The second step of the SDLMI framework within the MARS intervention includes establishing a plan. Data decision making is foundational when establishing a plan or process to create and sustain behavioral change (Mertler, 2007; Mertler & Zachel, 2006). This module specifically uses data managing practices as a foundation to developing and progress monitoring a detailed action plan. See MARS example in Appendix D. Mentors help the students to use data, guiding them to define needs, set and prioritize goals, develop intervention methods, and evaluate progress. In this step, mentors work with students to self-evaluate current status and self-identified goals. From here, mentors and students work collaboratively to determine a plan of action to bridge the gap between self-evaluated current status and self-identified goal status. This includes brainstorming "what can I do to remove these barriers?" Mentors encourage students to identify strategies and provide support in creating a specific action plan. In addition to developing short-term solutions for the students, mentors work collaboratively with the students to create long-term plans that prevent the same thing from happening in the future. Because although we can build solid plans, we are unable to predict with certainty the effectiveness of any intervention prior to its implementation. Collecting and using continuous data to set longer-term goals is an important part of data-based decision-making. Therefore, a progress-monitoring process must be put in place to evaluate intervention effectiveness (Fuchs & Fuchs, 2012). MARS Mentors work with students to identify data that when collected will best represent the targeted behavior and be sensitive to its potential change. Working with school personal, mentors help create the capacity to collect data in a non-intrusive, feasible way, while remaining impactful to the students' plans of action.

Step Three: What have I Learned?

Follow-up of treatment implementation is a crucial element of effective intervention. The mentors role at this stage is to work with the student to evaluate the effectiveness of actions taken as a result of the planning process. In those instances where intervention has either been ineffective or less than adequately effective, the mentor should encourage the student to problem solve and reform the intervention plan. Even when treatment had produced good results, the mentor should continue to check in from time to time to support the mentor and determine if any changes in the intervention are needed.

In the problem-solving model process, evaluation and revision is arguably the most important step. Very similar to procedures used to identify solutions to the initial identified problem, student performance is evaluated and compared with a standard of acceptable performance, and any discrepancies are highlighted. Using this information, mentors work with students in creating a space for formative feedback surrounding (a) whether or not a gap exists between current and expected levels of performance, (b) determine the magnitude of that gap, (c) elaborate specific strategies to reduce the gap, and (d) monitor the effectiveness of those strategies (Shute, 2008).

Although providing the student feedback may not seem novel, often the information represents only adult perspectives. Alternatively, MARS Mentoring encourages the students to interpret and offer solutions during feedback sessions to increase student involvement and engagement in the process. Mentor and students work collaboratively to evaluate whether the identified strategies were sufficient to result in improved performance. During sessions, students create visual representations of the

data, depicting trends graphically. This enables students to self-evaluate progress toward

goal achievement. Mentors collaborate with students to compare progress with desired

outcomes (Appendix E). This evaluative conversation helps to support students in

reevaluating if goal progress is sufficient and to make decisions on whether the goal

should remain the same or change. Upon evaluating if progress is adequate, inadequate,

or if goal has been achieved. mentors and students work to reevaluate the action plan and

make changes as necessary (Appendix F).

Motivational Interviewing (MI)

Motivational Interviewing (MI) is a strategy to address the readiness of change in

others and attending to a person's individual motivations for change. Miller and Rollnick

(2012) describe MI as a style, instead of a procedure, that integrates core communication

skills into the arrangement of conversations that specifically favor change, as opposed to

sustaining arguments against it. What makes MI unique is the absence of confrontation or

persuasion, as seen in other intervention techniques. Instead, there is an emphasis on

collaboration, partnership, respect, and the idea that the student has all of what is needed

to transition further into the change process. Within MI, there is the belief that attitudes

are influenced by individual self-talk. Thereby, convincing oneself that change is the

best option and requires a person actively speak the change into existence. MI is focused

on helping people explore their own ambivalence and talk themselves into change, rather

than being commanded by others to change because it is necessary (Miller & Rollnick,

2012).

MI focuses on improving motivation to change through conversation. Why might

this be important? Traditional motivational strategies in schools often revolve around

punishment, pressure, and occasional reinforcement. Often, untrained school personnel engage in what is termed "the righting reflex" in which, when students profess discouragement, they are simply encouraged to concentrate more, focus more, or are reminded of the rules that govern consequences for lack of performance. Students, especially adolescents, are often ambivalent and have come to believe that effort does not lead to reward. Such students often reject efforts of support and encouragement. MI proposes to offer an alternative strategy which can potentially improve the well-being of both the provider of support and the student.

The success of MI. As an intervention, MI is designed to impact targeted behaviors by eliciting and strengthening intrinsic motivation (Miller & Rollnick, 2012). Much research has highlighted the effectiveness of MI in the schools. A meta-analysis showed that MI had positive effects on in other interventions (Lundahl, Kunz, Brownell, Tollefson, & Burke, 2010) as well.

Several recent studies have demonstrated the promise of MI with students in relation to school-related outcomes. For example, Reich, Sharp, & Berman (2015) explored the use of MI techniques to motivate students to study for tests. In this particular study, the authors delivered a one-time 15-10 minute intervention including MI for a group of undergraduate students and found that exam scores were higher following their intervention compared to other tests taken prior. They also indicated that students seemed to retain the motivation up to seven weeks following the intervention (Reich et al., 2015). In another evaluation of MI in schools, Enea and Dafinoiu (2009) examined the impact of MI on truancy among Romanian high school students. Thirty-eight students were randomly assigned to either an intervention group that received eight one-hour

counseling sessions using MI techniques or a control group. Findings indicated that the MI intervention group saw a 61 percent decrease in truancy compared with the control group, in which no change in truancy rate was observed (Enea & Dafinoiu, 2009). In addition, Strait et al. (2012) found in a randomized study that one session of MI improved middle school students' class participation, homework completion, and math grades when compared with those of a control group. This study was replicated with another sample of middle school students with similar results, including improvements in homework completion, class participation, and math performance (Terry et al., 2013). In a third study, Terry et al. (2014) randomly assigned students to receive either one or two sessions of MI and found that two sessions of MI had a significantly stronger effect than one session on students' school-related outcomes. In addition to overall positive outcomes, MI also has some added notable features, making it attractive for use within educational settings. Lundahl, Kunz, Brownell, Tollefson, & Burke (2010) highlight its ability to be delivered in time sensitive settings, with its effects being demonstrated in as little as one session.

  Components of MI. In order for conversations to truly represent MI, Miller and Rollnick (2012) emphasize that an understanding of the foundational "spirit of MI" is necessary to avoid using the process to manipulate others. This foundation is comprised of partnership, acceptance, compassion and evocation (Miller & Rollnick, 2012). Partnership is based on the notion that the change process should never be coercive, as change is ultimately a choice that is autonomously made, based on individual motivations and interests. Acceptance and compassion create an atmosphere of respect and honor for student autonomy, maintaining that they have worth and potential, and priority given only

to the student's needs. Evocation is simply the assumption that the student already encompasses the resources needed to make their decision with the goal being to bring forth that wisdom.

   Specific MI Skills. The core skills used throughout MI are described using the acronym "OARS:" (a) asking open questions, (b) affirming, (c) reflecting, and (d) summarizing (Miller & Rollnick, 2012, p. 62). The use of open-ended questioning involves affirming statements that reflect a positive desire or plan. Open ended questions naturally provide more information, allowing the consultant to use that information to focus and direct attention in a strategic manner. Mentors are encouraged throughout the MARS program to use open-ended questions. This is reflected in the manualized MARS curriculum, which focuses on eliciting student reflections and responses.

   Affirming is being intentional in addressing the student's strengths and recognizing them in a manner that communicates respect and conveys positivity. At the beginning of each session, mentors spend time affirming student progress and commitment to the goal. Often times, this can be difficult as the student may not have responded well in a given week. It becomes the role of the mentor to find a strength or a positive "gem" to affirm, no matter how small. The affirmation must be genuine and delivered in a way the student is clear on what they did well.   The MARS curriculum includes an initial strength-based assessment, which mentors, are encouraged to reflect back upon with the student throughout the program. The curriculum also includes questions that elicit affirmation from the mentor (e.g. *According to your data, what days were good?; You met your goal! What helped you reach it?*).

Reflecting statements are based on the actual narrative of the student and are made to help further explore one's thoughts and attitudes on a particular subject. Reflecting back what is heard is often using parallel, but different words. Through the initial MI Mentor Training and ongoing supervisor feedback, mentors are encouraged to use a variety of reflection techniques (i.e. simple reflection, complex reflection and double-sided reflection). For example, in a complex reflection, a negative student statement such as "I don't like it here," might be reflected by the mentor as "You would like things to change." Double-sided reflections accept ambivalence, providing feedback on both sides of that which the student may accurately perceive as mixed motivation. For example, a negative student statement such as "I just want to get to level 5 and get out of here… I hate this place, but I can't seem to get past level 2," might be reflected as "On the one hand, you feel like you're stuck at level 2, but on the other hand, you know that you want to transition out by passing levels quickly." The goal of the mentor here is to reflect back the positive "change talk" of the student's statement.

Summarizing involves pulling together multiple reflective statements of positive desires, motivation, and development of any positive planning. Collectively, these skills are meant to foster engagement, provide direction for exploring the change process and convey mutual understanding. Mentors are trained to use this skill to bring together significant ideas and information (highlighting the student's positive statements and change talk) from the session. This skill involves some paraphrasing, but also integrating bits and pieces of information the student has presented throughout the session. Good summaries can be integral in the mentor's ability to transition to and from intervention components or to effectively end the session.

The Processes of MI. The practice of MI is often described in relation to four key processes: engaging, focusing, evoking, and planning (Miller and Rollnick, 2012). These identified processes of MI are developmentally consistent with the markers that characterize adolescence as they develop and exert autonomy (Naar-King and Suarez, 2011).

Engaging, or the development of a "mutually trusting and respectful helping relationship" (p. 40), constitutes the beginning of the process and is centered on agreement, collaboration, exploration of core values, and promotion of integrity (Miller & Rollnick, 2012). MI emphasizes that before any intervention takes place, the student must be engaged, as it increases the likelihood that they will invest in the intervention. The first week of mentoring of the MARS Mentoring curriculum includes building rapport. Mentors engage students in "Get to know you games" and facilitate conversations of personal interests, goals, experiences, etc. Mentors are encouraged to stay on module one until sufficient rapport is established.

The second process, focusing, utilizes the core communication skills to mutually develop clear direction and achievable goals. This focus must not only be developed, but also maintained, which makes this particular process ongoing (Miller & Rollnick, 2012). The mentor's role is to focus the student in helping them identify the overarching goal, determine what objective data the student can gather to give attention to what is going well and what is not going so well, and continue to have a collaborative conversation using MI skills to reach the goal.

Evoking encompasses the foundation of MI, helping the student become an active participant in the change process by voicing their own arguments for and against change.

It is important during this stage that the mentor not instruct the student as to what to do, but instead have the student explore their own motivations regarding the specified change. This may include a desire, a need, ability, or reason to change. Mentors use skills to evoke language that conveys the student's desire, ability, reasons, need, or commitment to change. See "Questions that Evoke Change Talk" MARS Mentoring training handout in Appendix G and "Strategies for Evoking Change Talk" in Appendix H for more information on how mentors work to identify and elaborate on student motivations for change.

Planning, the last stage of MI, helps students commit to change, and uses their own solutions to develop an action plan. Developing a specific change plan that the student agrees to and is willing to implement is critical component of the behavioral modification component. The mentor works with the student in examining what he or she is willing to commit to as well as well as helping identify strategies that are likely to address the student's concerns. It is also important that the mentor collaborates with school personal to create an detailed plan for how others can support the student. Collaboration, including the promotion of understanding for all stakeholders are critical components of successful plan implementation. To help facilitate this collaboration, the MARS curriculum includes a weekly "Take Away" worksheet that is shared with the teachers. This also helps to address feasibility of the strategies identified for the student in the classroom setting.

These four processes, as Miller and Rollnick (2012) describe, often overlap and occur at various times within the MI sessions. For example, while engagement is mentioned as the first process, there may be a time where engagement fluctuates and this

process needs to be revisited. If the specific skills related to the MI processes are uses effectively, then a mentor can easily move between the steps when appropriate. The modular format of the MARS curriculum was designed to parallel this understanding of change- that progress is not linear. MARS strategically guides the student forward, in the direction of change, while simultaneously providing encouragement, exhibiting empathy and refraining from using judgment when modules or processes must be revisited.

It is important to note that MI is not a behavior change technique. It is not a strategy done on or to individuals but is a way of communicating with people which enhances their own internal guidance, wisdom, and desires. MI has been shown to be effective at crossing cultural boundaries with little difficulty, which is important noting the diverse nature of alternative school populations. The MI conversations mentors have with students are meant to explore why and how they may wish to change. This method attempts to break down the disparity of authority so that the speaker is not seen as standing in front of or over the student but instead is perceived as "coming alongside." MI works to create a mindset that does not focus on persuasion or trickery but draws out motivation from the student.

Principles of MI. Miller and Rollnick (2012) describe four main principles of Motivation Interviewing. Principle 1: Express Empathy. Expressing empathy towards a student shows acceptance and increases the chance of the mentor and participant developing a rapport. Expression of empathy is critical to the MI approach. When students feel that they are understood, they are more able to open up to their own experiences and share those experiences with others. Importantly, when students perceive empathy on a mentor's part, they become more open to small challenges by the mentor

about discrepancies in behavior. Students become more comfortable fully examining their ambivalence about change and less likely to defend ideas when they feel understood. In short, a mentor accurately understanding a student's experience facilitates change.

Principle 2: Develop Discrepancy. "Motivation for change occurs when people perceive a discrepancy between where they are and where they want to be" (Miller, Zweben, DiClemente, & Rychtarik, 1992, p. 8). Developing discrepancy between goals and current behaviors enables the student to see that their present situation does not necessarily fit into their values and what they would like in the future. The student, rather than the mentor, should present the arguments for change. Change is motivated by a perceived discrepancy between present behavior and important personal goals and values. When a student perceives that his or her current behaviors are not leading toward some important future goal, the student may become more motivated to make important life changes. By eliciting pros and cons of the students behavior, mentors gently and gradually help students to recognize how some of their current ways of being may lead them away from, rather than toward, their self-identified goals.

Principle 3: Roll with Resistance. The MARS Mentoring program was developed for a group of students that has a reputation for pushing back against change. With this in mind, mentors are trained extensively in this principle of "Rolling with Resistance." See handout from the MARS Mentor training in Appendix I. When using Motivational Interviewing, the mentor does not fight student resistance, but "rolls with it." Rolling with resistance prevents a breakdown in communication between mentor and student. Instead, the mentor uses student "momentum" to further explore his or her views. Using this

approach, resistance tends to be decreased rather than increased, as students are not reinforced for becoming argumentative. MI encourages students to develop their own solutions to the problems that they themselves have defined. This removes any conceptualized hierarchy in the student-mentor relationship for the student to fight against. In exploring student concerns, mentors may invite students to examine new perspectives, but do not impose new ways of thinking on students. It is important for mentors to take note of resistance as a potential signal to respond differently to the student.

Principle 4: Support Self-efficacy. A student's belief that change is possible is a crucial component to facilitating change. If a student believes that he or she has the ability to change, the likelihood of change occurring is greatly increased. As a student is held responsible for choosing and carrying out actions to change, the mentor supports the student in reaffirming his or her ability to achieve the goal. The mentor must remember that their own belief in the student's ability to change can become a self-fulfilling prophecy. Another source of supporting self-efficacy of students is the mentor emphasizing there is no "right way" to change, and if a given plan for change does not work, students are only limited by their own creativity as to the number of other plans that might be tried. For example, the mentor might inquire about other changes, small or large the student has made in the past, highlighting skills and strengths the student already demonstrates.

Operant Conditioning

Operant conditioning theory suggests that behavior can be modified by consequences and through reinforcement (Skinner,1938, 1953). This principle to

behavior modification is used in many areas to assist in changing individuals' problematic behaviors. Miltenberger (2008) noted that, "A wealth of research in behavior modification demonstrates that these behaviors often can be controlled or eliminated with behavioral intervention" (p. 17). Decreasing disruptive behavior may be of particular importance for students classified with emotional and behavioral disorders (ED), as this is often the primary reason they are placed in restrictive educational placements outside of the general education classroom (Hanley, Iwata, & McCord, 2003).

B. F. Skinner is considered to be one of the most influential figures in the development of behavior modification (Labrador, 2004). His work has influenced the field of education, as well as the field of psychology. He believed that positive reinforcement was more effective than punishment when trying to change and establish behaviors. Skinner also recognized that people can be taught age-appropriate skills using the following techniques: learner feedback, breaking tasks down into small steps, repeating the directions as many times as possible, working from the most simple to the most complex tasks, and giving positive reinforcement (Frisoli, 2008).

Reinforcement. The use of positive reinforcement as an effective, high-impact strategy for improving students' behaviors has been supported by documented research for a variety of school circumstances for both individual students and groups of students (Wheatley et al., 2009). Reinforcement is the presentation of a reward following a desired behavior intended to make that behavior more likely to occur in the future. Research has shown that both reinforcement and punishment can be used to effectively reduce undesired behaviors in the classroom; however, reinforcement is much more successful in teaching students' alternative behaviors that are considered to be more appropriate and

desirable (Mather & Goldstein, 2001). Unfortunately, most alternative schools and programs are more punitive in nature. Alterative placements are effectively teaching students what not to do, but to start impacting student behavioral outcomes, they must begin promoting and positively reinforcing desired behaviors. This creates an even greater need for systems of positive reinforcement to be implemented consistently and with fidelity in these environments.

Types of Reinforcement. There are two types of reinforcers to choose from (Alberto & Troutman, 2009). Primary reinforcers are those that are innately reinforcing, such as edibles (small pieces of food or drink) or sensory experiences (light up toys, fans, massagers). Secondary reinforcers include tangible items, activities, special privileges, social praise, and attention. In consideration that students being educated in alternative settings being more extrinsically motivated (Conratii, 2001) utilizing these types of reinforcers are vital to effective intervention.

Considerations of Reinforcement. It is important to consider the possible influences of depravation and satiation (Berg, Wacker, & Steege, 1995) on the effectiveness before initiating systems of reinforcement. Depravation is keeping the reinforcer away from the student until they have exhibited the desired behavior. For example, if a student does not meet the agreed upon behavior goal, he or she should not receive the positive reinforcement. Many times this can lead to tension between the student and mentor. To reduce the probability and/or intensity of this occurring, mentors work to create clear expectations ahead of time. Another potential barrier to reinforcement effectiveness is satiation. This occurs when the reinforcer has been

overused and is no longer motivating. To avoid satiation, the MARS intervention

employs a variety of types and intensity of reinforcers.

   Forced Choice Assessment. Reinforcement often fails to increase the desired

behavior in the future when the reinforcer is not actually motivating to the student. We

can prevent this by including the student in the process of identifying reinforcers. The

forced-choice reinforcer assessment technique allows the teacher to discover what

potential reinforcers a child actually prefers and even permits the instructor to rank those

reinforcers in the order of apparent student preference. To ensure that the reward offered

to the student contingent on meeting his or her goal is motivating, that is, it acts as a

reinforcer, each mentor conducts a forced choice assessment with the student. Although

the name "forced choice" assumes an authoritative delivery modality, this is actually a

collection of student chosen rewards. Working together, the mentor and student

systematically determine what the student finds to be reinforcing. Often times this

includes both primary and secondary reinforcers. With the consideration of resources,

working towards larger secondary reinforce (i.e. earning free time to play basketball;

lunch off campus; etc.). See MARS example in [Appendix J](#).

   Mentoring

   Establishing a caring and supportive environment is an essential attribute of

successful alternative schools (Darling & Price, 2004; de la Ossa, 2005; Fairbrother,

2008; May & Copeland, 1998; Poyrazli et al., 2008; Quinn et al., 2006; Saunders &

Saunders, 2001; Washington, 2008). Taking this into consideration, a foundational

component of the MARS Mentoring program is the mentor delivery model.

The use of mentoring has been shown to be effective in connecting students with a positive adult role model in the school setting (Markland et al., 2005) and has long been discussed as a strategy for positive youth development and as a deterrent of risky youth behavior (DuBois & Karcher, 2005). Empirical results show a fairly modest but consistent effect size on academic achievement (Flaxman, 1992; DuBois et al., 2002). Student motivation and involvement may also be influenced by mentoring. Role modeling can expose students to educational and social opportunities, which may open their eyes to different possibilities and motivate them to seek out new experiences (Ainsworth, 1989; Rhodes, 2002). Motivation also may be enhanced by helping students set achievable goals and realize personally relevant outcomes (DuBois & Karcher, 2005). Moreover, mentors may help students stay focused on goals and deter them from distractions and obstacles (Rhodes, 2005).

Nationally, teachers are collaborating with universities, government agencies, businesses, and the military to plan, fund, implement, and evaluate mentoring programs in their classrooms and in their schools (DuBois et al., 2002). Youth mentoring typically involves a relationship between a caring, supportive adult and a child or adolescent with the assumption that supportive relationships with adults are important for personal, emotional, cognitive, and psychological growth (Ainsworth, 1989; Rhodes, 2002). Most mentoring programs have an initial orientation for new mentors in which program requirements are explicitly defined (McGill 1997); however, after the initial orientation, there appears to be extensive variability in the level of ongoing training and support for mentors. That being said, there are certain program elements, including ongoing training for mentors, structured activities for mentors and youth, expectations for frequency of

contact, mechanisms for support and involvement of other important relationships, and monitoring of overall program implementation, have been found to be strong predictors of positive effects (DuBois et al. 2002). MARS mentors are rigorously trained in MI and behavioral principles prior to implementation and are provided ongoing supervision and feedback throughout the mentor relationship. The expectation for frequency of sessions established prior to the start and a structured curriculum is easily followed via weekly modules. In addition, there is an intentional effort to collaborate and build relationships with other supports in the building through scripted session updates and action plans.

Generalizability

In order for students to successfully change problematic and disruptive behaviors, it is important that rewards used to reinforce desired behaviors are understood and agreed upon across environments. Infantino and Little (2005) specified that, "Students and teachers need to agree mutually upon incentives that are realistic and deliverable from teacher's viewpoint, so that students can strive to achieve these, rather than aim for incentives that are unlikely to be delivered" (p. 504). In other words, once a system of reinforcement has been individualized for a student, everyone who interacts with the student should be aware of the system. Individuals who work with the student should be aware of the possible reinforcers and how to avoid satiation of those reinforcers. By having a variety of school personnel, and in different settings across the school day using the reinforcement system, students will be more likely to generalize their appropriate behavior to other areas. For this reason, the MARS program includes a "Take Away" component to the intervention which allows teachers to work collaboratively with students in reaching set goals. After concluding the weekly MARS mentor session,

students share with their teacher a "Take Away" worksheet. This worksheet includes students' SMART goals for the week, specific identified strategies, the type of progress monitoring data to be collected, and potential positive reinforcers students can earn after meeting the weekly goal. The "Take Away" worksheet also includes the section "How my teacher can help me" which identifies feasible ways teachers can support students' goals. See MARS example in Appendix K.

Program Feasibility and Acceptability

In their 2016 pilot study, Henry and colleagues found that the MARS Intervention study was well accepted by those participating (Henry et al, in prep). Teachers, students, and mentors who participated in the program overwhelmingly endorsed the intervention as a positive experience. The Usage Rating Profile- Intervention Revised (Chafouleas, S. M., Briesch, A. M., Neugebauer, S. R., & Riley-Tillman, T. C, 2011), was given to Mentors, Teachers, and Administrators to report intervention acceptability and feasibility. The URP-IR is a 6-point Likert scale, ranging from strongly disagree to strongly agree. On average, teachers, administrators, and mentors "strongly agreed" with all but one URP-IR profile (Acceptability= 5.75; Understanding= 5.80; Home School Collaboration=2.86; Feasibility=5.88; System Climate= 5.62; System Support=5.87). Teachers and other school personal believed the measure was practical for them to implement and that it aligned with the schools values. They reported they understood the principles and logistics of the intervention and accepted the program almost 100%. School personal also reported that the program was well supported by outside resources but could also find a place within the school to operate independently. The lowest score, Home School Collaboration, was not a surprise. At this point, MARS Mentoring focuses

on the school environment working with students and teachers and does not have a home-school component. However, this is an area of growth for the program in the future.

The Children's Usage Rating Profile (CURP; Briesch, A. M., & Chafouleas, S. M. 2009) is a 4-point Likert scale which measures the students' perceptions of the intervention. The CURP revealed students' were on average in "total agreement" with the interventions desirability and feasibility (Personal Desirability=4.00; Feasibility=3.77; Understanding=3.83). Students reported that they wanted to participate in MARS. In fact, this area of review received a perfect average score of 4 out of 4. Students also reported they held strong understanding of the program and believed it was feasible logistically to participate.

Purpose of the Current Study

The purpose of this study is to evaluate the impact of the MARS Mentoring intervention program delivered school-wide at an alternative education school on student behavioral and academic outcomes. The study will investigate the following research questions:

Research Question 1: Did students attending an alternative school placement who received the MARS Mentoring intervention have more positive social, emotional, and behavioral outcomes than a matched comparison sample of students from a similar alternative school placement while controlling for baseline scores?

Hypothesis 1: It is hypothesized that students from the school participating in MARS will demonstrate a significant improvement on social, emotional, and behavioral competencies as evidenced by improved self-efficacy scores, improved teacher and

student ratings on the Alternative Education Tier- 3 (AET-3) assessments, and fewer disciplinary actions in comparison to similar students from schools not participating in MARS.

Research Question 2: Did students attending an alternative school placement who received the MARS Mentoring intervention have more positive academic outcomes than a matched comparison sample of students from a similar alternative school placement?

Hypothesis 2: It is hypothesized that students participating in MARS will demonstrate a significant increase in academic performance as indicated by average grade improvement from the previous semester in the areas of Mathematics and English Language Arts in comparison to similar students from schools not participating in MARS.

CHAPTER 3: METHOD

This chapter focuses on the research methods of this study. The following

sections are discussed: (1) Study Design, (2) Participants and Setting, (3) Study Variables

and Measure, and (4) Analytic Plan.

Study Design

A quasi experimental pre- and posttest intervention design evaluated student

social, emotional, behavioral, and academic outcomes. Data collection occurred at two

points: (1) four weeks into the semester, prior to implementation of MARS; 2) During the

final week of the 10-week intervention program (approximately week 16 of semester).

Participants and Setting

A total of 38 students from a local behavioral alternative school in Central

Missouri participated in the intervention. The intervention was administered school-wide

(i.e., all students in the program received MARS). A separate matched comparison

sample was derived from 120 students from two similar alternative education settings.

All three alternative education placements specialize in working with students with

emotional, behavioral and mental health needs. The intervention school represents the

district's most restrictive environment for K-12 students with behavioral and emotional

concerns who have struggled to be successful in a traditional school environment and

ultimately because of behavioral concerns, have been referred into the program. The

program does not require an out of school suspensions; however, many students do have

suspension history. This alternative placement requires at least 16 weeks of satisfactory

improvement in behavior prior to allowing the student to transition back to their regular

education classroom. Non-Intervention School *A* maintains a similar model in which behavioral concerns can determine placement with or without suspension. The program requires a semester of attendance before a transition can be considered. Non-Intervention School *B* also represents the districts most restrictive environment, as students are required to have a long term out-of-school suspension or expulsion from their home school and cannot begin transition back until the suspension has expired. Data from schools two and three were used to create a matched comparison sample.

The current study included 158 students and 21 teachers from the three described alternative education schools across Missouri and Kansas school districts. The student sample was comprised of 75% male and 25% female. The largest percentage of students were Black (44%), with most other students identifying as White (31%), followed by Bi-Racial (14%), Latinx (9%), American Indian or Alaska Native (2%), and Asian (1%). Six students were enrolled in elementary school (grades K-4), 72 middle schools (grades 5-8), and 80 students enrolled in high school (grades 9-12). Teachers in this study were 71% female, 81% White, and 19% Black. See Table 1 and Table 2.

The study also included 26 University graduate students trained as mentors. The majority of mentors identified as female (71%) and from the Department of Educational, School, and Counseling Psychology (54%), but also included graduate students from the Department of Social Work (11%), Department of Special Education (15%), Department of Psychological Sciences (8%) and the School of Journalism (4%). Mentors varied in level of experience working with at-risk youth with/without alternative education placement. Mentors were majority White (66%), Black (21%), Bi-Racial (5%), Latinx (3%), and Asian (5%). See Table 3

Propensity Score Matched Sample

A matched sample of MARS and non-intervention school students was derived using propensity scores analysis. After matching, the sample consisted of 13 MARS students and 57 control school students. The matched student sample was comprised of 81% male and 19% female. The largest percentage of students were Black (49%), with most other students identifying as White (23%), followed by Bi-Racial (14%), Latinx (10%), and American Indian or Alaska Native (4%). Thirty-seven students were enrolled in middle school (grades 5-8), and 33 students enrolled in high school (grades 9-12). See Table 4.

Measures

Table 5 provides an overview of the measures and corresponding research questions. The following provides a detailed explanation of the study variables.

Dependent Variables

Student social, emotional, and behavioral outcomes were assessed across four main categories: Disciplinary Action, Protective Factor Assessment, Student Self-Efficacy, and Academic Performance. Protective Factor and Student Self-Efficacy assessments were administered at week six of the student's school semester (January-Time 1) and at week sixteen of the semester (May- Time 2). Discipline data were also collected at Time 1 and Time 2. Academic data was collected at Time 2 and previous grades were accessed from the previous semester final reports (December prior to intervention).

Disciplinary Action

Suspensions. Out of School Suspensions (OSS) were collected from school records. Out of School Suspensions are considered removal from the school for a period of at least a day.

Office Discipline Referrals (ODRs). Office discipline referrals were also collected from student records. ODRs are considered major infractions that required removal from the classroom to a designated room (i.e. "buddy room" "cool down room" "office").

Minor Classroom Discipline Referrals (Minors). Minor discipline referrals were gathered from school records and are defined as behaviors that require adult intervention and documentation but can be maintained in the classroom (i.e. "safe seat," "time out," "cool down corner").

Protective Factor Assessment

The *Alternative Education Tier-3* (AET-3) teacher and student report measures were used to assess social and behavioral outcomes for students receiving the intervention. The AET-3 assess eight pro-social factors for students in alternative education including: (1) *Respect for Authority* represents a range of externalizing behaviors exhibited within a power differential dynamic. (2) *Effective Learner* assesses the student's ability to actively engage in an academic task and use strategies to monitor and persevere through educational challenges. (3) *Communication* addresses the social skill in appropriately conveying thoughts and feelings. (4) *Goal Setting Orientation* focuses on a student's desire to develop and monitor behavior by acquiring new skills and mastering new situations. (5) *Conflict Resolution* represents a student's ability to address conflict in a cooperative and constructively context. (6) *Positive Relationships*

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encompasses both teacher-student and student-peer and evaluates a students' ability to initiate and maintain positive relationships. (7) *Emotional Regulation* refers to the strategies used to manage the thoughts, feelings, and behaviors related to an emotional experience. (8) *Life Satisfaction* assess students' mental health and well-being with lower scores suggesting symptoms of depression and/or anxiety.

The *AET-3-Teacher Rating Scale* (AET-3-TRS) is a 30-item assessment of pro-social behavior of children ages 5 to 18 years. The AET-3-TRS asks teachers to indicate how often or to what degree the student exhibits a particular skill on a 5-point Likert scale from *Almost Never* (1) to *Almost Always* (5). Possible scores range from 30-150 with higher scores indicating more support for the student's strength of protective factor. Eight subscales assess the student's Respect for Authority, Positive Communication, Effective Learner, Emotional Regulation, Goal-Setting Orientation, Conflict Resolution, and Life Satisfaction. Cronbach's alphas for the teacher scale were considered adequate to good (.79 to .95). With all but one AET-3 Teacher Rating Subscale producing alpha coefficients of at least .80 (Positive Relationships =.79), each subscale's internal validity can be evaluated as good and supported in making low-stake decisions.

The *AET-3 Student Rating Scale* (AET-3 SRS) is designed to obtain self-reports on children ages 12 to 18 years old. The AET-3 SRS includes 35 items that ask the student to indicate how often he or she feels a certain way and/or how often he or she believes the statement to be true on a 5-point Likert scale from *Almost Never* (1) to *Almost Always* (5). Possible scores range from 35-175 with higher scores again indicating more support for identified protective factors. Eight subscales assessed the student's Respect for Authority, Positive Communication, Effective Learner, Emotional

Regulation, Goal-Setting Orientation, Conflict Resolution, and Life Satisfaction. Student scale Cronbach's alphas produced strong coefficients ranging from .81 to .86. See Table 7 for additional reliability data.

Student Self Efficacy

General Self-Efficacy Scale. The General Self-Efficacy scale (GSE; Schwarzer, 1992) is a self-report measure of self-efficacy. The 10-item scale reflects an optimistic self-belief that one can perform a novel or difficult tasks, or cope with adversity in various domains of functioning. Perceived self-efficacy facilitates goal-setting, effort investment, persistence in face of barriers and recovery from setbacks. In samples from 23 nations, internal reliability for the GSE proved adequate with Cronbach's alphas ranged from .76 to .90, with the majority in the high .80s. Criterion-related construct validity is documented in numerous correlation studies where positive coefficients were found with favorable emotions, dispositional optimism, and work satisfaction. Negative coefficients were found with depression, anxiety, stress, burnout, and health complaints (Schwarzer & Jerusalem, 1995).

Student Academics

Student Grades. A total academic score was calculated using the mean of grades from one English/Language Arts and one Math class. Grades were collected from school records from the semester prior to the study (Fall 2017) and at post test data collection. Math classes included one of the following: "Math Foundations," "Math 1," "Math 2," "Algebra I," "Geometry," "Algebra II," "Trigonometry," "Pre-Calculus, Calculus," "Advanced Placement Calculus." English classes included one of the following:

"English," "ELA," "Advanced Placement English." Grades ranged from letter grades A (90-100), B (80-89), C (70-79), D (60-69), F (50-59).

Independent Variable – MARS Intervention

Training. Twenty-five university graduate students were trained as mentors for the MARS Mentoring Program. Mentors were required to attend a four-hour training on Motivational Interviewing (MI) practices with youth and adolescents and pass a written MI knowledge test, and a role-play fidelity test. Training sessions introduced and reviewed the basic principles of MI (i.e. spirit of MI and guiding principles) and student centered techniques of MI (i.e. open-ended questions, affirmations, reflections, and summaries). These initial sessions included examples of the different principles and opportunities for mentors to respond and practice each skill. In the next training session, the MARS Mentoring program curriculum and implementation practices are introduced. Following the training, mentors were required to pass a written knowledge test at 90% accuracy or above, which includes short answer questions on the topics covered in sessions one and two and role play the navigation a potential scenario using MI with adolescents. The trainer provided individualized feedback following the test. Mentors scoring below a 90% were able to retake the role-play after a 24-hour waiting period to allow for practice time.

Mentor Matching. Each mentor completed a comprehensive survey identifying areas of training with specific populations (e.g. autism, behavior disorders, adolescents, young children) as well as personal characteristics (e.g. outgoing, shy) and interests (e.g. sports, art, reading, video games). Teachers completed individual surveys for each student requesting personal characteristics in addition to problem behaviors and student

strengths (e.g. problem behavior: student has trouble becoming aggressive with peers when upset; strength: student can communicate feelings when under control). Teachers were also asked to provide opinion in what mentor characteristics may be most beneficial for the student (i.e. gender; areas of expertise, personality characteristics). After completion of the surveys, students and mentors were matched for most compatibility across domains.

Weekly Sessions. For 10-12 weeks, mentors met with their student(s) for 30-45 minutes once a week implementing the MARS Mentoring Curriculum. The program was divided into four core modules (1) Getting to know you (2) Honest and Positive Reflections (3) Goal Setting and (4) Reflection and Goal Reformation. Module 4 is the longest module with weekly goal management throughout the remainder of the mentorship. Each module includes MARS structured MI discussion questions with later modules introducing daily progress monitoring data to help assist a conversation oriented to behavioral change. Mentor sessions were scheduled around the student to avoid conflict with core curriculum and/or high preference activities.

Intervention Fidelity

During three independent MARS sessions, observations were conducted by an independent observer using a 15-item fidelity checklist. The fidelity checklist includes 8 items specific to the MARS curriculum modules. In addition, five questions, which were adopted from the MI fidelity measure used in Strait, Smith et al. (2012) measured general MI skills, including use of reflective listening, follow-up open-ended questions or statements, support and recognition of change talk, support of self-efficacy, and recognition and appropriate responses to resistance. The last two questions assessed the

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mentors' attendance and punctuality with the student. Across three time points, mentors averaged a fidelity score of 84.45% out of 100%. Each mentor received feedback following each fidelity check. Mentors average fidelity scores increased across each observation, Time 1 (*M*=82.03, *Min*=67 *Max*=100), Time 2 (*M*=84.11, *Min*=73 *Max*=100) and Time 3 (*M*=87.26, *Min*=73, *Max*=100). The increase may be attributed to intervention module differences or the receipt of feedback. See Table 6 for more descriptive information on fidelity.

To evaluate the strength of the match between the mentor and student, measures of mentor relationship alliance were used. The Youth Mentoring Survey (YMS; Harris & Nakkula, 2018) measures mentee perspectives on relationship quality and match structure through several aspects of relationship quality and match structure (i.e., the focus of match activities). Twenty-five items assess internal relationship quality using three subscales: Relational Quality (e.g., feeling happy with the relationship), Instrumental Quality (instrumental benefits from the relationship), and Prescription (the extent to which mentees feel that their mentors focus too much on changing them). Items are rated on a 4-point scale: Not at all true, A little true, Pretty true, or Very true. Higher scores on the YMS internal relationship quality and match structure subscales reflect more positive perceptions of the mentoring relationship. Students reported a mean of score of 79.35 of the possible 100 points (*min*=37, *max*=99, *SD*=16.29). See Table 7 for more Mentoring Relationship information.

Analytic Plan

Simple mean differences

We used independent *t*-tests to determine whether mean differences in the social, emotional, behavioral, and academic outcomes of those students receiving or not receiving the MARS Mentoring intervention were statistically significant. We used a Benjamini–Hochberg false discovery rate (BHFDR) correction to evaluate significant *p*-values. As noted above, this type of analysis is confounded by selection bias. Therefore, we considered the results obtained from t-tests of these mean differences as a "benchmark" for the results obtained from analyses using propensity score matching.

Propensity Score Matching

Because students who received the intervention versus non-intervention school students were not randomly assigned, propensity score matching was utilized. Propensity score matching is a statistical technique that attempts to estimate the effect of a treatment by accounting for the covariates that predict receiving the treatment. (Rosenbaum & Rubin, 1983). Matching can help strengthen causal arguments in quasi-experimental and observational studies by reducing bias. Propensity score matching attempts to reduce the bias due to confounding variables found in an estimate of the treatment effect obtained from simply comparing outcomes among students that received the treatment versus those who did not. It provides an alternative when it is not possible to implement a randomized controlled trial. The problem with nonrandomized designs is that the treatment group and the comparison group may systematically differ from each other based on certain characteristics or covariates (Fan & Nowell, 2011; Rosenbaum & Rubin, 1983). Prior to the propensity score matching, there were significant differences between students who

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received MARS Mentoring and non-intervention school students. Among the identified covariates, the intervention verses non-intervention school students showed significant differences on 12 of the 25 covariates at baseline. Propensity score matching was used in the current study to control for these demographic and pretest differences.

The method of propensity score analysis used in our study matched demographically comparable samples of students from intervention and non-intervention alternative schools in order to obtain a less biased estimation of the association between MARS program exposure and student outcomes. Specifically, propensity score analysis matched the different groups of students on as many covariates as possible in order to control for confounding effects that might affect treatment outcome. Covariates included in the matching algorithm included background characteristics comprised of demographics (gender, age, grade, race), social, emotional, and behavioral indicators (AET-3 baseline scores, office discipline referrals, minor classroom discipline referrals, and out of school suspension), and prior achievement (language and math achievement scores at the end of the previous grade). A majority of the literature argue that researchers should use every variable at their disposal and should provide a strong rationale for excluding any measured variable from the propensity score model (Thoemmes & Kim, 2011; Brookhart et al., 2006). Rosenbaum (2002) cautions against using only predictors, which significantly differ between groups for a few reasons. First, when controlling for covariates individually, the researcher cannot consider the relationship between predictor and outcome. Secondly, just because the difference between groups on a predictor is not statistically significant, it doesn't mean it is not meaningful. Lastly, controlling for covariates individually considers

predictors only one at a time, whereas the logistic model considers the predictors as a group. As such, we included all available predictors potentially related to student outcomes.

Propensity score matching is a two-stage process. Stage 1 involves estimating the propensity score. In this study, a logistic regression model (where the dependent variable was the MARS intervention status) predicting the probability for a student to receive the MARS Mentoring intervention rather than being enrolled in a school not implementing MARS was estimated according to 28 observed covariates listed in Table 8. The predicted probability that each subject would receive intervention was calculated, and this was the propensity score.

Stage 2 entails the actual matching of the treated group to the non-treated groups. For propensity score matching, we used the R statistical software (R Core Team, 2013) package MatchIt (Ho, Kosuke, King & Stuart, 2013). We conducted matching by applying a nearest neighbor matching algorithm (Randolph, Falbe, Manuel, & Balloun, 2014). This algorithm was appropriate for our study because we wanted to retain as many MARS Mentoring Intervention students as possible and had a large pool of non-intervention school students for creating matches. We attempted to find up to five matches per MARS Mentoring student (5:1 ratio matching) to maximize the best matches from the non-intervention student group while still maintaining precision (Ming & Rosenbaum, 2000). Non-intervention cases receive weights based on the distance between their propensity score and the propensity score of the treatment case to which they are being matched. All non-intervention cases can potentially contribute to the weighted mean composite of the non-intervention cases, which improves estimation power and efficiency (Frisco et. al. 2007). This is especially important when there are many potential matches for each

treatment subject, as was the case with our sample. When there are large numbers of control individuals, it is possible to find multiple good matches for each treated individual (Smith, 1997; Rubin and Thomas, 2000). Selecting the number of matches involves a bias:variance trade-off. It is possible that selecting multiple controls for each treated individual will increase bias since the 2nd, 3rd, and 4th closest matches are, by definition, further away from the treated individual than is the 1st closest match. On the other hand, utilizing multiple matches will decrease variance due to the larger matched sample size. Using a larger non-intervention sample reduces standard errors and in turn leads to a more precise estimate of the propensity score (Frisco, Muller, & Frank, 2007). To address some increase in bias do to multiple control matches, we assigned a caliper in order to remove any control units matched to a treatment unit outside a specified distance.

Nineteen MARS Mentoring students and 63 non-intervention students were removed by use of the specified caliper of $0.25\varepsilon p$. In the most common implementation of propensity-score matching, pairs of treated and untreated subjects are formed whose propensity scores differ by at most a pre-specified amount (the caliper width). In this context, the selection of the closest match is determined by $0.25\varepsilon p$, as recommended by Rosenbaum and Rubin (1985) and accepted most commonly as the default pre-specified tolerance for matching. In addition, a small number of subjects (7 students) were initially eliminated prior to creating propensity scores as a result of missing data (i.e. elementary students with no self-report measures). With the likelihood we would not find a good match for elementary students in treatment with no elementary aged non-intervention comparison school students available for matching, and weighing the number of covariates we would lose to engage in matching (matching software does not allow for missing data), we made

the decision to remove the small number of elementary students from any PSM analysis. Intervention and non-intervention matched and unmatched units are visually displayed via jitter plot in Figure 1.

After matching the intervention students and non-intervention student samples were very similar in terms of the number of students in each group, AET-3 Student and Teacher Report Scales, and discipline action baseline data. Before matching, the non-intervention schools had a larger number of students, had more minority students, and received a greater number of minor referrals, office discipline referrals, and out of school suspensions. Significant differences were observed on 15 out of the 28 outcomes between the MARS Mentoring Intervention School and the two non-intervention schools. After propensity score matching 1:5, significant differences were observed on two out of the 28 outcomes between the MARS Mentoring Intervention students and the matched comparison sample. In comparison, when attempting to match 1:1, ten significant differences between intervention and the matched comparison sample still remained. This can be viewed in greater detail in Table 11. The distribution of propensity scores by group can be examined via graphical display in Figure 2. The histograms before matching on the left differ to a great degree, however, after matching 1:5, the baseline data are very similar. In summary, both the numerical and visual data show that the matching was successful. The final sample included 13 intervention students and 57 matched non-intervention students.

The steps of analysis were to (a) choose matching algorithm, (b) use software to estimate propensity scores and create a matched set of cases with the minimum amount of bias, (c) assess covariate balance and bias reduction, (d) and estimate the average

treatment effect on the treated with means comparison and regression analysis.

Treatment effects were evaluated on the following outcomes (1) Disciplinary Action: Out of Schools Suspensions, Office Discipline Referrals, and Minor Classroom Referrals, (2) Student Self- Efficacy: General Self Efficacy Assessment (3) Protective Factor Assessments: Alternative Education Tier 3 (AET-3) Student and Teacher Rating Scales, (4) Academic Performance: Total Academic Score- aggregated English/Language Arts and Math grades.

To account for the possibility of inflated Type I errors due to multiple comparisons, we used the Benjamini–Hochberg False Discovery Rate (BHFDR, 1995) correction procedure with a false discovery rate of .05 to determine whether hypothesis tests were statistically significant. This correction, as suggested by the What Works Clearinghouse (Institute of Education Sciences, 2014), is more conservative than using a standard .05 alpha level and should result in more powerful tests than using a procedure that controls the family-wise error rate like the Bonferroni procedure (Benjamini & Hochberg 1995). The False Discovery Rate based control is less stringent with the increased gain in power and has been widely used in cases where a large number of hypotheses are simultaneously tested. More conservative than using a standard .05 alpha level and should result in more powerful tests than using a procedure that controls the family-wise error rate like the Bonferroni procedure. Bonferroni "punishes" all input p-values equally, whereas Benjamini-Hochberg (as a way to control the FDR) "punishes" p-values accordingly to their ranking. For significant findings, outcome measures were transformed to z scores so that the MARS intervention coefficients could be interpreted

as standardized mean differences using Cohen's (1992) effect size guidelines (i.e., 0.20

small, 0.50 medium, 0.80 large).

CHAPTER 4: RESULTS

The aims of this study were to examine the effects of the MARS mentoring program on social, emotional, behavioral, and academic outcomes of students. It was expected that students who receive the MARS intervention would show greater improvement in each of these areas when compared to a matched sample of students who did not receive the intervention.

Below we present results from three types of analyses. The first set of results, displayed in Table 9, are estimates of mean differences in Disciplinary Action, Protective Factor scores, Student Self-Efficacy scores, and Academic Performance between the subsamples of students who received MARS Mentoring (n = 38) and non-intervention school students (n = 120). These students were not matched on their propensity to receive intervention. The second and third set of results, shown in Table 10 and Table 11 are estimates obtained using propensity score matching techniques with Paired Sample t-tests and linear regression methods. These results indicate differences in the social, emotional, and behavioral outcomes between children who received and who did not receive MARS Mentoring, but who have been matched on their propensity to receive such services.

Results presented by Research Question

Research Question 1: Did students attending an alternative school placement who received the MARS Mentoring intervention have more positive social, emotional, and behavioral outcomes than a matched comparison sample of students from a similar alternative school placement while controlling for baseline scores?

Preliminary Analysis

Table 9 displays simple mean differences and standard deviations between those receiving and not-receiving MARS Mentoring. Prior to propensity score matching, results indicate that children receiving MARS Mentoring demonstrated significant improvements in General Self-Efficacy (GSE) ratings, Alternative Education Tier 3 (AET-3) protective factor scores, and a reduction in disciplinary action depicting meaningful gains in social, emotional, and behavioral profiles.

General Self-Efficacy. On average, MARS Mentoring students reported significantly higher General Self-Efficacy scores (M=23.36, SD=6.76), whereas students in the non-intervention school had an average of (M=18.68, SD=5.73). This is a significant difference at the p <.002 level with a Cohen's d effect size of 0.72 which can be interpreted as medium to large (Cohen, 1992).

AET-3 Teacher Rating Scales. The MARS Mentoring Group mean scores were significantly higher on the four out of the nine AET-3 Teacher Rating Scales including the Total Protective Factor composite. On average, MARS students scored higher (M=98.77, SD=19.00) than non-intervention school students (M=90.48, SD= 23.50), t(153) = 2.15, p <.035, d=.39). Respect for Authority mean scale scores were significantly higher for MARS students (M=12.11, SD=2.92) than non-intervention students (M=10.68, SD=3.13), t(153) = 4.20, p <.001, d=.47). Mean score differences for the Goal Orientation scale were also significant for MARS students (M= 13.46, SD= 3.00) and non-intervention school students (M=10.63, SD=4.03), t(153) = 4.52, p <.001, d=.80). MARS Students received higher mean scores for the AET-3 Emotional

Regulation scale (*M*=11.77, *SD*=2.41) when compared to non-intervention school student mean scores (*M*= 9.67, *SD*=3.19), *t*(153) = 4.52, *p* <.001, *d*=.74).

AET-3 Student Rating Scales. Students receiving MARS Mentoring reported significant differences in mean scores when compared to the non-intervention group on seven out of the nine AET-3 Student Rating Scales including the Total Protective Factor composite. On average, MARS students scored higher (*M*=105.25, *SD*= 16.88) than non-intervention students (*M*=92.24, *SD*=19.49), *t*(146) = 3.56, *p* <001, *d*=.71). The Respect for Authority scale mean difference was also significant for MARS students (*M*=14.20, *SD*=3.23) when compared to non-intervention students (*M*=11.39 *SD*=3.28), *t*(152) = 4.30, *p* <00, *d*=.86). MARS student means (*M*=12.82, *SD*=2.79) for the Communication scale were significantly higher than non-intervention students (*M*=11.17, *SD*=3.14), *t*(146) = 2.76, *p* <008, *d*=.56). Conflict Resolution scale mean scores for MARS students (*M*=14.07, *SD*=3.23) when compared to non-intervention students (*M*=12.56 *SD*= 3.75) were also significantly higher *t*(146) = 2.16, *p* <.036, *d*=.43). Students enrolled in MARS (*M*=12.43, *SD*= 2.83) obtained significantly higher mean scores for the Goal Orientation scale than non-intervention school students (*M*=11.12, SD= 3.76), *t*(146) = 3.63, *p* <.001, *d*=.39). Emotional Regulation scale mean scores were significantly higher for MARS students (*M*=12.46, *SD*= 2.46) than non-intervention students (*M*=10.91, *SD*= 3.00), *t*(146) = 2.87, *p* <.006. *d*=.57). There was also a significant difference between MARS students means (*M*= 12.18, *SD*= 2.26) and non-intervention students means (*M*=10.58, *SD*= 2.60), *t*(146) = 3.28, *p* <.002, *d*=.66) on the AET-3 Life Satisfaction scale.

Disciplinary Action. The number of disciplinary actions administered for MARS Mentoring students was significantly less across two out of the three outcome measures.

On average, MARS students received significantly fewer out of school suspensions (M=.18, SD=.39) than non-intervention school students (M=.42, SD=.87), t(152) = -2.39, p <.018, d=.36). Students receiving MARS also received fewer Office Discipline Referrals (M=147, SD= 57.02) than non-interventions school students (M=184.11, SD=68.47), t(152) = -3.19, p <.002, d=.59).

PSM Results

The following results were achieved using propensity score matched data. Table 10 displays the mean differences of a paired samples t-tests MARS Mentoring students and matched non-intervention participants. Results of paired sample t-tests for students receiving MARS Mentoring indicated significant improvement pre–post intervention for protective factor scores on both Student and Teacher Alternative Education Tier 3 (AET-3) Rating Scales and General Self-Efficacy (GSE) scores. To further evaluate differences among groups utilizing the propensity score matched data and controlling for baseline, we conducted a series of linear regressions. Table 11.1- Table 11.5 display results indicating that enrollment in the MARS Mentoring Program significantly predicted higher student General Self-Efficacy (GSE) scores, fewer Office Discipline Referrals (ODR) occurrences, and improved Protective Factor scores on both Student and Teacher Alternative Education Tier-3 (AET-3) Rating Scales.

General Self-Efficacy. MARS Mentoring students demonstrated a significant improvement in self-efficacy scores on the GSE, $t(12) = 4.84$, $p < .001$, d=2.12. Multiple regression analysis was used to investigate whether enrollment in MARS Mentoring significantly predicted higher student ratings of General Self-Efficacy when controlling for baseline GSE scores. The results of the regression indicated the model explained 48%

of the variance and that MARS significantly predicted greater GSE scores (B = 8.27,

p<.002) in comparison to students who did not receive the MARS intervention.

AET-3 Teacher Rating Scales. Results of paired sample t-tests for MARS

Mentoring students indicated significant improvement for pre-post intervention for four

of nine AET-3 Teacher Rating Scales including the Total Protective Factor Composite,

t(12) =4.84, *p*<.001, d=.93, Goal Orientation, *t*(12) =3.96, *p*<.002, d=1.06, Emotional

Regulation *t*(12) =3.86, *p*<.002, d=1.20, and Positive Relationships, *t*(12) =3.04, *p*<.01,

d=.80. A series of regressions evaluated MARS intervention status as predictors in post-

intervention AET-3 Teacher Rating Scales scores. Results indicated enrollment in

MARS Mentoring, while controlling for baseline scale scores, predicted significant

models for the following AET-3 Scales: Total Protective Factor Composite, B =

15.46(3.04), *t*=5.08, *p*<.015, *d*=.27 , Conflict Resolution, B = 1.83(.60), *t*=3.04, *p* <.03),

d=.18, Goal Orientation B = 4.01(.68), *t*=5.91, *p*<.019, *d*=.40, Emotional Regulation, B =

2.46(.57), *t*=4.31, *p* <.023, *d*=.31 , Positive Relationships, B = 3.33(.80), *t*=4.18, *p*<.021,

d=.29, and Effective Learner, B=1.28(.57), *t*=2.26, *p*<.026, *d*=.14.

AET-3 Student Rating Scales. Results of paired sample t-tests for MARS

Mentoring students also indicated significant improvement on the Alternative Education

Tier 3 (AET-3) Student Report Scales including the Total Protective Factor Composite

t(12) =5.14, *p* < .001, *d*=1.27, Respect for Authority *t*(12) =2.57, *p*<.025, *d*=.85, Conflict

Resolution, *t*(12) =3.02, *p*< .011, *d*=.84 Goal Orientation, *t*(12) =5.00, *p*<.001, *d*=1.54

Emotional Regulation *t*(12) =3.67, *p* < .003, *d*=1.15 , Positive Relationships *t*(12) =4.63,

p<.001, *d*=1.06 Life Satisfaction *t*(12) =4.12, *p* <.001, *d*=1.31 A series of regressions

evaluated MARS intervention status as predictors in post-intervention AET-3 Student

Rating Scales scores were conducted. The results of the regression analyses indicated

MARS Mentoring as a significant predictor of improved AET-3 Student Report Scales

including Total Protective Factor Composite B = 20.47(3.23), *t*=6.33, *p*<.004, *d*=.27,

Respect for Authority, B = 3.63(.81), *t*=4.50, *p* <.013, *d*=.42, Conflict Resolution, B =

3.01(.76), *t*=3.94, *p* <.017, *d*=.31, Goal Orientation, B = 3.52(.77), *t*=4.54, *p* <.01, *d*=.34,

Emotional Regulation, B=1.97(.62), *t*=3.16, *p* <.028, *d*=.28, Positive Relationships,

B=2.39(.46), *t*=5.19, *p* <.006, *d*=.33, and Life Satisfaction, B=2.39(.46), *t*=5.19, *p* <008,

d=.38 .

 Disciplinary Action. After propensity score matching, it was noted that MARS

students on average received fewer disciplinary actions in comparison to non-intervention

school students. MARS students' out of school suspensions means post-intervention were

fewer (*M*=.15, SD=.38) than non-intervention school students (*M*=.46, SD=.85) while

MARS students also averaged fewer Minor classroom discipline referrals (i.e. 218 vs

246, respectively). Significant post intervention differences were identified for MARS

students Office Discipline Referrals (*M*=135.00 SD=.65.79) in comparison to their

matched non-intervention peers (*M*=198.74, SD=65.79), *t*(12) =3.22, *p* <.002, *d*=1.35.

The paired samples t-test revealed that students who did not receive the MARS

Mentoring intention obtained a significant increase in out of school suspensions, *t*(12) =

3.47, *p* < .001, Office Discipline Referrals, *t*(12) = 18.69, *p* < .001, and Minor Classroom

Referrals, *t*(12) = 13.56, *p* < .001. MARS mentoring students did show a significant

increase in Minor Classroom Referrals. Multiple regression was then conducted to

examine MARS intervention effects while controlling for baseline discipline action. A

significant model emerged to predict Office Discipline Referrals, B=-70.59(15.17), *t*= -

4.65, $p < 0.03$, $d=.40$. This model accounted for 50% of the variance. Students who received the MARS intervention had an average 70.59 fewer Office Discipline Referrals in comparison to the matched student sample who did not receive the MARS intervention. There were no significant predictors when including Minors Classroom Referrals or Out-of-school suspensions in the model.

Research Question 2: Did students attending an alternative school placement who received the MARS Mentoring intervention have more positive academic outcomes than a matched comparison sample of students from a similar alternative school placement?

Preliminary Analysis

Students enrolled in MARS Mentoring performed significantly better in the evaluation of academics by calculating the average of English Language Arts and Math grades. On average, MARS Mentoring students received an average of 87.10% while students from non-intervention school students averaged 83.80%. This difference was statistically significant after controlling for multiple comparisons using the BHFDR Correction, $t(152) = 2.79$, $p <.007$, $d=0.39$.

PSM Results

When using the propensity score matched data, students enrolled in MARS Mentoring improved grade averages from pre-post intervention, however this difference was not significant after controlling for multiple comparisons with the BHFDR correction $t(12) =2.42$, $p<.033$. Similarly, regression analysis found that when controlling for baseline academic scores, enrollment in MARS Mentoring on average predicted an improvement, however this increase was not significant, B $=-.48(.27)$, $t=-1.76$, $p<.084$. See Table 11.5.

Results Summary

Two sets of analysis were presented. First, unmanipulated data from one school receiving intervention and two non-intervention schools are evaluated using simple means comparisons (independent samples t-test). These results provide a larger, more robust sample of participants allowing for more socially impactful conclusions, generalizability, and a reduced chance of committing a type II error. However, this set of data is constrained by the potential bias of selection as participants were not randomized to receive intervention. By using propensity score matching, sampling bias is substantially reduced and the quasi-experimental design is further supported by mimicking randomization. Although PSM increases the robustness of the study's design, it largely reduces the overall sample. Therefore, the following summary of results will review the totality of outcomes, providing a comprehensive outcome analysis of pre-matched and propensity matched data.

Research Question 1:

Students receiving MARS intervention demonstrated significant improvements in social, emotional, and behavioral outcomes by establishing consistent improvements across all three data analytic methods. *Self-Efficacy*- MARS students reported significantly higher self-efficacy scores, with significant mean differences when compared to the non-intervention school students both prior to propensity score matching and post matching data analysis. *AET-3 Teacher Scales*- The following AET-3 Teacher Report Scales produced significant results across data analytic techniques: Total Protective Factor Composite, Goal Orientation, and Emotional Regulation. *AET-3 Student Scales*- MARS students reported significantly higher scores in comparison to

non-intervention school students when examining pre-matched and propensity score matched data. The MARS students demonstrated these significant improvements across all analyses for the following AET-3 Student Report Scales: Total Protective Factor Composite, Respect for Authority, Conflict Resolution, Goal Orientation, and Life Satisfaction. *Office Discipline Referrals*- Simple means comparison using all collected data revealed significant differences between intervention and non-intervention groups. Students receiving MARS were almost one standard deviation less likely to receive the disciplinary action. In addition, the matched sample t-test also highlighted no significant increases in ODRs pre-post intervention for MARS students.

Research Question 2:

Although students enrolled in MARS Mentoring earned significantly higher grade averages than non-intervention school students, this significant difference was not maintained when utilizing the PSM model and controlling for multiple comparisons.

CHAPTER V: DISCUSSION

The purpose of this study was to evaluate the impact of the Motivational Interviewing with At-Risk Students (MARS) Mentoring Program for students placed in alternative education settings. Research questions focused on two primary areas: social emotional, and behavioral functioning, and academic performance. This section discusses the implications of the findings, study limitations and future directions for research, and concluding comments.

Significant Findings and Implications

It was hypothesized that MARS students would demonstrate a significant increase in overall positive behavior and improved social emotional competencies as evidenced by increases on the General Self-Efficacy questionnaire, all teacher and student report AET-3 scales, as well as a decrease in office discipline referrals, classroom discipline referrals, and out of school suspensions. Preforming simple means comparisons, matched sample t-tests and multiple linear regression analyses, concluded that MARS Mentoring had significant positive effects across social, emotional, and behavioral domains supported by significant improvements in the areas discussed below. Improvements in these areas were found significant when compared to the non-intervention school students both prior to propensity score matching and post matching data analyses.

MARS Mentoring students reported significantly higher self-efficacy scores. Simple means comparison found that MARS Mentoring students reported significantly higher mean scores on the General Self-Efficacy assessment when compared to non-intervention school students (i.e., 23.36 vs. 18.68 points, respectively). When utilizing propensity score matching techniques, MARS students reported significant improvements

in their General Self-Efficacy ratings pre-post intervention. Regression analysis also indicated that enrollment in MARS significantly predicted an almost two standard deviations point increase in General Self-Efficacy scores when compared to students who did not receive the MARS intervention, meaning that on average MARS students had an 8 point higher score on the 40-point GSE assessment of self-efficacy. When young people exhibit self-efficacy they not only sustain higher levels of school engagement, they also set higher goals and have more positive perspectives in regards to accomplishments (Klassen & Usher, 2010). Moreover, when students' confidence in their own capabilities increases, they tend to use more cognitive and metacognitive strategies regardless of previous achievement or ability and the willingness to invest mental effort in a task changes as well (Pajares, 2006). MARS Mentors focus first on establishing this foundation of self-efficacy and self-control in order to further behavioral modification strategies effectiveness.

The Alternative Education Tier-3 (AET-3) teacher and student report scales are research-based measures, which assess specific protective factors for alternative education students. The Alternative Education literature consistently identifies the eight domains assessed in the AET-3 as important skills for successful student outcomes (Osher, Sidana, & Kelly, 2008; Conley, 2002; Lehr, Tan, &Ysseldyke, 2009, Osher, & Huff, 2006; Carver, Lewis, & Tice, 2010). Simple means comparisons, paired samples t-tests, and regression analyses illustrated the significant positive impact that MARS Mentoring has on students receiving the intervention.

The AET-3 Total Protective Factor scale is a summative composite of protective factor scales. This score provides an at-glance summary of student skills that are specific

to success in alternative education settings. Simple means comparison found that post intervention, MARS students scored significantly higher on the Total Protective Factor Composite (98.77 vs 90.48). In addition, paired samples t-tests using propensity score matched data found significant improvements for MARS students pre-post intervention. Controlling for baseline scores, regression analysis significantly predicted participants receiving the MARS Mentoring intervention averaging 16 points more points on the TPF Teacher Report scale, considered to be a small effect size (Cohen, 1992). The Total Protective Factor Student Report model predicted similar significant effects with an average increase of 20 points compared to non-intervention school students, a moderate effect size. The significant improvements on AET-3 Total Protective Factor scores provides strong evidence that the MARS Mentoring program is collectively targeting important skills previously identified as critical for the success of students in alternative education. MARS Mentoring has provided alternative education settings a structured intervention process to actively target the development of these protective factors contributing to positive student outcomes.

Individual AET-3 scales evaluated the specific protective factors for intervention and non-intervention school students. Student and Teacher reported significant improvements in both Goal Orientation and Emotional Regulation. Goal Orientation has been recognized as an important skill among as a protective factor among youth, positively associated with individuals' academic and behavioral self-efficacy (Anderman & Young, 1994; Anderman & Midgley, 1997; Roeser, Midgley, & Urdan, 1996). The MARS curriculum directly addresses goal setting with a module providing psychoeducation on the skill and weekly support setting SMART goals. This was

reflected in the results when comparing MARS students with non-intervention students. Simple means comparison on the AET-3 Teacher Report revealed an entire standard deviation difference when examining the unmatched sample. PSM paired samples t-test also indicated significant improvements pre-post intervention on both teacher and student report measures. In addition, regression analyses indicated significant models for AET-3 Goal Orientation student and teacher report scales. Both models predicted MARS Students improving 3 to 4 points better (20 point scales) in Goal Orientation skills when compared to non-intervention students even after controlling for multiple comparisons using the BHFDR correction. This intervention improvement is considered to be medium in effect size (Cohen, 1992). Students receiving MARS were significantly better in setting adequate short and long-term goals, monitoring goal progress, and creating systems of support to help meet goals. These skills are important for all youth, particularly those who we hope to transition from alternative school placements back into traditional school settings.

MARS Mentoring students' also demonstrated significant improvement in Emotional Regulation scores through both teacher and student report scales. Emotional regulation skills have been positively linked to both a reduction in problematic behavior, including internalizing and externalizing concerns, and an increase in positive prosocial behavior among children whom have been identified with social and behavioral difficulties (Shields, Cicchetti, & Ryan, 1994, Lengua, 2002, Garnefski et al, 2005; Silk et al., 2006, Beauchaine et al., 2007). Students receiving MARS Mentoring demonstrated improved strategies used to manage the thoughts, feelings, and behaviors related to an emotional experience. Prior to PSM, teachers reported Emotional Regulation protective

factor scores almost one standard deviation higher for MARS students. In addition, students receiving MARS self-reported similarly higher scores over non-intervention students (i.e., 12.46 vs. 10.91 points, respectively), an effect size of .57, considered a medium effect (Cohen, 1992). Propensity score matched analysis also supported improvements in MARS students' emotional regulation skills pre-post intervention. Student self-report data indicated MARS students had an average of 2.46 increase on their AET-3 Emotional Regulation score from baseline in comparison to students who did not receive the MARS intervention. Teacher report data revealed similar findings with an average increase of 1.97 predicted for MARS students over non-intervention school students, both statistically significant after controlling baseline and multiple comparisons. Both models indicate that MARS students consistently received higher scores on measures of Emotional Regulation. Effect sizes can be interpreted as small to medium in size (Cohen, 1992).

MARS Mentoring students also demonstrated through self-report significant results in the AET-3 scales Respect for Authority, Conflict Resolution and Life Satisfaction. Respect for Authority is an important construct that measures youths' perceptions of and relations to adult authority. Respect for Authority is an important component of adult-youth relationships and promotes the positive collaboration of students with their teachers (Pace & Hemmings, 2007). . Students receiving MARS Mentoring averaged post intervention mean scores one standard deviation higher than non-intervention students (i.e. 14.20 vs 11.39). Paired samples t-tests using the PSM sample provided additional support for the improvement in Respect for Authority with significant pre-post scores for MARS students. Regression analysis also identified

MARS Mentoring as a significant predictor to improved Respect for Authority with change estimates almost four points greater for students receiving the intervention, meaning that the MARS intervention helped improve students' respect for authority and will likely result in students having better relationships with adults in the school setting.

MARS Mentoring students reported significantly higher mean scores on the AET-3 Conflict Resolution Scale (i.e. 14.07 vs 12.56). Paired samples t-test and regression analysis using PSM data also provided support for the effectiveness of MARS mentoring on student conflict resolution skills. MARS students reported significant improvements in mean scores pre-post intervention and regression analysis also predicted a significant increase when compared to the matched non-intervention comparison group. Students attending alternative programs, often face challenges that extend from not being able to manage conflict cooperatively (Deutsch, 1973; Johnson & Johnson, 1996). Teaching conflict resolution skills to youth in these settings can provide students with the tools necessary to resolve their own conflicts in a constructive and cooperative way, and ultimately, reduces violence in school, at home, and in the community. MARS Mentoring works to empower students to resolve their own conflicts in a way that emphasizes the importance of maintaining on-going relationships.

Life Satisfaction is the evaluation of protective factor against mental health concerns. Alternative programs which often rely solely on punitive strategies struggle to show long term behavioral improvements (Corcoran, 2006), but with the addition of services that address mental health concerns such as anxiety and depression, mentors can help facilitate meaningful behavior change. Although MARS may not primary target mental health concerns, this evaluation provides evidence that improvement in life

satisfaction, including an increase of the protective factor against anxiety and depression symptoms. There was a significant difference between MARS students and non-intervention students' means (i.e. 12.18 vs 10.58) on the AET-3 Life Satisfaction scale. In addition, a paired samples t-test using PSM data indicated significant improvements pre-post intervention for students receiving MARS mentoring. Regression results produced a significant model with enrollment in MARS predicting higher Life Satisfaction scores, an average of 2.39 point improvement over non-intervention students, an effect size equal to .66, which can be considered a medium to large effect (Cohen, 1992). When students are able to make meaningful gains in important protective factors that improve their mental health, they are likely to be more responsive to behavioral supports, increasing the likelihood they will be successful in returning to a traditional school setting. Students in alternative education often slip through the cracks of receiving support because they are grouped into a category of students considered to be non-responsive to intervention. Many methods of change for the construct of life satisfaction are plausible, including the one-on-one attention, the consistency of expectations and consequences, and the curriculum delivered through an MI framework to build self-efficacy. What we do know is that MARS Mentoring students consistently rated themselves higher in having protective factors for depression and anxiety-significant improvements in our students' ability to cope with mental health concerns.

In addition to social and emotional gains, MARS Mentoring students demonstrated a reduction in disciplinary actions. Specifically, simple means comparison revealed significant differences in office discipline referrals (ODRs) between intervention and non-intervention groups (i.e. 147 vs 184). Utilizing PSM, means comparison post

intervention also found significantly fewer ODRs for MARS students than those attending a non-intervention school. More specifically, students receiving MARS Mentoring received almost one and a half standard deviations fewer of this disciplinary action (i.e. 135 vs 198, d=1.35). A significant regression model predicted MARS students to receive an average of 55.81 fewer ODRs than those attending matched comparison non-intervention schools, a standardized effect size of .40, considered to be a small to medium effect (Cohen, 1992). Out of school suspensions did not meet a significance level after utilizing a p-value correction for multiple analysis (Benjamini-Hochberg), however, students participating in MARS Mentoring were on average 30% less likely to receive an out of school suspension. This significant decrease has enormous implications for the alternative education student population. As reviewed, exclusionary discipline such as removal from the classroom, is detrimental to the student learner resulting in poor educational and life outcomes (Lochner & Moretti, 2002; Owens, Wettach, & Hoffman, 2015; Brown, 2007). MARS Mentoring is working to negate this risk by keeping students in classrooms and in school more of the academic year.

It was also hypothesized that students receiving MARS Mentoring would demonstrate a significant increase in academic performance from the previous semester by examining grade averages in the areas of Math and English Language Arts. Prior to PSM, MARS Mentoring students achieved significantly better grade averages post intervention than non-intervention students (87.10 vs 83.80) with a Cohen d effect size of 3.68, over three standard deviations improvement; However, this significance was not maintained when PSM was implemented. Regression analysis found that when controlling for baseline academic scores, students enrollment in MARS Mentoring on

average demonstrated an improvement of nearly half a letter grade, however this increase was not statistically significant. Academic rigor is often compromised in alternative education settings, resulting in lower academic achievement among students in these settings (Darling & Price, 2004; Fairbrother, 2008; Kelly, 1993; Kim & Taylor, 2008; Loutzenheiser, 2002; Muñoz, 2004; Nichols & Steffy, 1999; Washington, 2008, Fairbrother, 2008). Alternative schools need interventions that not only support students' behavioral needs, but that also produce positive academic outcomes. Without continued academic progress, students in alternative education will transition back to their home school ill-prepared and more academically at risk for school failure.

Limitations and Future Directions

Although the current study employs advanced statistical methods to address potential bias, there are several limitations. Because the intervention was implemented as a part of a school-wide mental health initiative, students in this study were not randomly assigned to receive intervention. We tried to address sample selection bias as adequately as possible by using propensity scores to match MARS students with non-intervention students on baseline covariates that were available from all three schools. However, there could still be other hidden factors that may have differentiated groups and influenced results. Moreover, the sample was relatively small which limited the power to conduct between group analyses. Thus, future research is needed that uses random assignment with larger groups of students in alternative education to receive MARS Mentoring versus a control group. Another concern related to the sample includes the possibility of contamination effects for two students who received MARS Mentoring approximately a year previous during a small pilot study. Regardless, the findings of this study show

some promise for the MARS Mentoring program. Other future investigations of the MARS Mentoring program should include a critical components analysis to identify any specific mechanisms of change that contribute more significantly to positive student outcomes than others.

Conclusion

Children attending alternative education settings are at risk. Many of the behaviors which place these students at risk are not just a reflection of one problematic school experience, but rather these students have been on a negative trajectory since childhood. While we know from the literature that the "punishment" impact of the alternative school alone is not enough to elicit a change in behavior, studies also suggest that adding behavioral interventions focusing on protective factors such as goal setting orientation and conflict resolution can be beneficial (Corcoran, 2006; Polsky, 2011; Johnson and Johnson, 1996). The question therein lies, how do we systematically go about providing this type of intensive support for a population comprised of individuals who have been exposed to behavioral interventions over and over again? Alternative schools, as a last-chance for many students, must intervene differently. This type of thinking began the development of the MARS Mentoring program. Founded in Self-Determination and Behavioral Modification theories, and delivered through a Motivational Interviewing framework, MARS Mentoring systematically strives to address motivation and self-efficacy deficits before supporting behavior change. If alternative schools can successfully foster an environment that enhances self-efficacy of specific skills, they possess the potential to become models for behavioral intervention.

The current study is important to the alternative education community in two essential ways. First, it contributes to the limited literature evaluating services for one of the most at-risk populations in our public school system today. There is a call for more rigorous data collection within alternative education programs and interventions (Lehr, Tan, & Ysseldyke, 2009). The current study provides consumers with critical outcome data for students in alternative education including discipline records, measures of self-efficacy, protective factor evaluation (using an assessment specifically developed for the alternative school population), and academic performance. In addition to this contribution, the current study evaluates a research-based intervention developed specifically for students in alternative education settings. The Motivational Interviewing with At Risk Students (MARS) Mentoring program is unique in that it is founded in both Self-Determination and Operant Conditioning theories. Thus, MARS addresses motivation and self-determination foremost, creating the opportunity for further behavioral intervention effectiveness. Even with a small sample size, the current evaluation provides initial support of the program, concluding significant improvements in areas critical for students in alternative education settings.

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TABLES

Table 1.

Demographic Statistics for Student Participants

	N	*%*	
N	158		
Gender			
Male	119	24.7	
Female	39	74.7	
Not Specified	1	0.6	
Ethnicity			
White	49	31.0	
Black	69	43.7	
Native American	3	1.9	
Asian	1	0.6	
Latinx	14	8.9	
Bi-Racial	22	13.9	
Grade			
Elementary	6	3.8	
Middle	72	45.6	
High	80	50.6	
	M	**SD**	**Min-Max**
Age	13.95	2.09	8-19

Table 2

Demographic Statistics for Mentor Participants

	N	%	
N	26		
Gender			
Male	8	31	
Female	18	69	
Ethnicity			
White	25	65.8	
Black	8	21.1	
Asian	2	5.3	
Latinx	1	2.6	
	M	**SD**	**Min-Max**
Age	26	1.89	23-31

Table 3

Demographic Statistics for Teacher Participants

	N	%	
N			
Gender			
Male	8	38.1	
Female	13	61.9	
Ethnicity			
White	18	85.7	
Black	3	14.3	
	M	**SD**	**Min-Max**
Age	36	2.1	24-68

Table 4

Demographic Statistics for Student Participants- PSM Matched Sample

	MARS n	MARS %	Non- Intervention n	Non-Intervention %
N	13		57	
School				
Intervention	13	100	0	0.0
Non-Intervention 1	0	0.0	33	57.9
Non-Intervention 2	0	0.0	24	42.1
Gender				
Male	10	76.9	47	82.5
Female	3	23.1	10	17.5
Ethnicity				
White	2	15.4	14	24.6
Black	8	61.5	26	45.6
Native American	1	7.7	2	3.5
Asian	0	0.0	0	0.0
Latinx	1	7.7	6	10.5
Bi-Racial	1	7.7	9	15.8
Grade				
Elementary	0	0.0	0.0	0.0
Middle	6	46.2	31	54.4
High	7	53.8	26	45.6

	M(SD)	Min-Max	M(SD)	Min-Max
Age	13.92 (1.38)	12-16	14.07(2.04)	10-19

Table 5

Descriptive Information- MARS Mentor Fidelity

	n	Minimum	Maximum	Mean	Standard Deviation
Time 1 Fidelity	38	68	100	82.03	19.50
Time 2 Fidelity	35	73	100	84.11	15.28
Time 3 Fidelity	35	73	100	87.26	9.03

Table 6

Descriptive Information- Mentoring Relationship

	n	Minimum	Maximum	Mean	Standard Deviation
Youth Mentoring Survey	37	37	99	79.35	16.29

Table 7.

Alternative Education Tier-3 (AET-3) Assessment Scale Reliability

Alternative Education Tier-3 (AET-3) Assessment – Teacher Report

Measure	Number of Items	Reliability (α)
Respect for Authority	4	.84
Emotional Regulation	3	.83
Effective Learner	4	.85
Communication	3	.84
Conflict Resolution	5	.86
Goal Orientation	4	.86
Positive Relationships	3	.79
Life Satisfaction	4	.82

Alternative Education Tier-3 (AET-3) Assessment – Student Report

Measure	Number of Items	Reliability (α)
Respect for Authority	6	.81
Emotional Regulation	4	.81
Effective Learner	5	.80
Communication	4	.84
Conflict Resolution	5	.82
Goal Orientation	4	.86
Positive Relationships	4	.81
Life Satisfaction	3	.86

Table 8.

Research Questions and Corresponding Analyses.

Research Question	Measures	Analysis
Research Question 1 What is the impact of the MARS intervention on student social, emotional, and behavioral outcomes when compared with two behavioral alternative non-intervention schools.	OSS ISS Minors ODRs GSE AET-3	Independent Samples t-Test Paired Samples T-Test OLS Regression (Using Propensity Scores)
Research Question 2 What is the impact of the MARS intervention on student academic outcomes when compared with two behavioral alternative non-intervention schools.	Grades	Independent Samples t-Test Paired Samples T-Test OLS Regression (Using Propensity Scores)

Table 9.

Baseline Covariates used in Propensity Score Matching (PSM) Model

Demographics	Discipline	AET-3 TRS	AET-3 SRS	Self-Efficacy	Grades
Grade	Out of School Suspension	Total Protective Factor	Total Protective Factor	General Self Efficacy	Math Grade
Age	Office Discipline Referrals	Respect For Authority	Respect For Authority		English Grade
Race	Minor Classroom Referrals	Positive Communication	Positive Communication		
Gender		Effective Learner	Effective Learner		
		Conflict Resolution	Conflict Resolution		
		Goal Orientation	Goal Orientation		
		Emotional Regulation	Emotional Regulation		
		Positive Relationships	Positive Relationships		
		Life Satisfaction	Life Satisfaction		

Table 10.

*Means Comparison- MARS Mentoring School/Non
Intervention Schools*
*Before PSM Matching.

Covariate	Control School Mean (SD)	MARS Mentoring Mean (SD)	P Value	d
Gender	0.72 (0.45)	0.87 (0.41)	0.032*	0.35
Race	1.48 (1.77)	1.76 (1.75)	0.381	
Age	14.16 (1.93)	13.29 (2.46)	0.025*	0.40
Grade	2.51 (0.50)	2.34 (0.75)	0.119	
School	2.35 (0.48)	1.00 (0.00)	<0.001*	
RFA1_TRS	10.77 (3.39)	10.45 (3.38)	0.613	
COMM1_TRS	9.62 (2.93)	9.26 (2.95)	0.519	
EL1_TRS	11.51 (4.38)	9.74 (3.24)	0.023*	0.46
CR1_TRS	12.55 (4.43)	11.66 (4.27)	0.277	
GO1_TRS	10.52 (4.15)	8.92 (3.84)	0.037*	0.40
ER1_TRS	8.76 (2.88)	8.66 (2.71)	0.853	
PR1_TRS	12.84 (4.67)	10.61 (3.98)	0.009*	0.51
TPF1_TRS	89.17 (24.20)	71.05 (22.37)	0.018*	0.78
LS1_TRS	12.62 (4.09)	11.76 (3.93)	0.26	
RFA1_SRS	11.46 (3.27)	11.47 (2.68)	0.989	
COMM1_SRS	10.93 (3.05)	10.88 (2.73)	0.922	
EL1_SRS	11.81 (3.70)	11.16 (4.28)	0.394	
CR1_SRS	12.50 (3.48)	11.12 (3.06)	0.044*	0.42
GO1_SRS	11.02 (3.43)	8.41 (3.14)	<0.001*	0.80
ER1_SRS	10.03 (3.04)	9.50 (2.24)	0.364	
PR1_SRS	11.72 (3.35)	9.44 (3.53)	0.001*	0.66
LS1_SRS	10.32 (2.56)	10.69 (1.97)	0.448	
TPF1_SRS	89.73 (18.83)	82.56 (15.55)	0.049*	0.56
GSE1	16.63 (4.77)	15.09 (4.10)	0.044*	0.35.
Minor1	118.66 (78.07)	141.19 (73.37)	0.126	
ODR1	63.71 (33.88)	54.47 (29.98)	0.012*	0.29.
OSS1	0.08 (0.31)	0.11 (0.32)	0.637	
ELA1	2.77 (1.20)	2.92 (1.08)	0.48	
Math1	3.28 (0.96)	3.55 (0.83)	0.123	

Table 11.
MARS Mentoring School/Control Schools
After propensity score matching* **1:5 and 1:1**

	1:5 Matching				1:1 Matching			
Covariate	Control School Mean (SD)	MARS Mentoring Mean (SD)	p	d	Control School Mean (SD)	MARS Mentoring Mean (SD)	p	d
Gender	0.78 (0.45)	0.89 (0.42)	0.082		0.68 (0.35)	0.89 (0.42)	0.011*	.54
Race	1.49 (1.77)	1.56 (1.63)	0.855		1.91 (.97)	1.56 (1.63)	0.241	
Age	14.12 (1.88)	14.22 (1.72)	0.792		18.12 (1.01)	14.22(1.72)	0.083	
Grade	2.50 (0.50)	2.63 (0.49)	0.242		3.11 (0.51)	2.63 (0.49)	0.024*	.95
School	2.35 (0.48)	1.00 (0.00)	<0.001*		2.12 (0.33)	1.00 (0.00)	<0.001*	
RFA1_TRS	10.82 (3.35)	9.44 (3.13)	0.052		11.31 (3.00)	9.44 (3.13)	0.031*	.61
COMM1_TRS	9.67 (2.88)	8.33 (2.83)	0.025*	.46	9.07 (2.70)	8.33 (2.83)	0.029*	.27
EL1_TRS	10.57 (4.35)	9.11 (3.14)	0.066		9.74 (3.43)	9.11 (3.14)	0.046*	.19
CR1_TRS	12.58 (4.44)	10.81 (4.01)	0.060		9.60 (3.08)	10.81 (4.01)	0.079	
GO1_TRS	9.54 (4.16)	7.74 (3.40)	0.061		10.14 (4.44)	7.74 (3.40)	0.021*	.61
ER1_TRS	8.76 (2.88)	8.33 (2.63)	0.486		7.98 (1.09)	8.33 (2.63)	0.372	
PR1_TRS	10.87 (4.68)	10.70 (4.20)	0.081		10.09 (4.68)	10.70(4.20)	0.079	
TPF1_TRS	80.45 (24.11)	74.70 (21.98)	0.054		84.17(20.83)	74.70(21.98)	0.041*	.44
LS1_TRS	12.64 (4.10)	11.22 (3.87)	0.104		12.65 (1.83)	11.22 (3.87)	0.089	
RFA1_SRS	11.46 (3.27)	11.30 (2.85)	0.808		10.16 (2.22)	11.30 (2.85)	0.718	
COMM1_SRS	10.97 (3.03)	10.93 (2.84)	0.939		9.89 (3.03)	10.93 (2.84)	0.937	
EL1_SRS	11.85 (3.69)	10.52 (3.04)	0.084		12.59 (3.50)	10.52 (3.04)	0.051	
CR1_SRS	11.52 (3.49)	11.00 (3.14)	0.049*	.15	13.52 (2.19)	11.00 (3.14)	0.044*	.93
GO1_SRS	10.04 (3.43)	8.00 (3.13)	0.081		10.15 (2.88)	8.00 (3.13)	0.027*	.43
ER1_SRS	10.03 (3.06)	9.30 (2.32)	0.246		10.05 (2.29)	9.30 (2.32)	0.280	
PR1_SRS	9.73 (3.36)	8.96 (3.46)	0.081		10.33 (3.51)	8.96 (3.46)	0.056	
LS1_SRS	10.33 (2.56)	10.56 (1.99)	0.666		10.24 (2.61)	10.56 (1.99)	0.687	
TPF1_SRS	89.93 (18.78)	80.56 (15.01)	0.079		95.12(16.18)	80.56(15.01)	0.004*	.94
GSE1	16.66 (4.78)	14.93 (3.06)	0.073		17.01 (4.41)	14.93 (3.06)	0.043	
Minor1	139.27(78.12)	159.30(70.95)	0.061		129.77(66.12)	159.30(70.95)	0.052	
ODR1	70.89 (33.96)	74.70 (28.91)	0.218		68.34 (30.63)	74.70 (28.91)	0.198	
OSS1	0.08 (0.31)	0.07 (0.27)	0.877		0.09 (0.33)	0.07 (0.27)	0.871	
ELA1	2.76 (1.21)	3.04 (1.16)	0.288		2.55 (1.01)	3.04 (1.16)	0.217	
Math1	3.29 (0.97)	3.67 (0.83)	0.061		3.14 (0.96)	3.67 (0.83)	0.059	

Table 12.

Results of t Tests and Means (SD) for MARS Mentoring Intervention Students and Non-intervention School Student Samples.

Variable	MARS Mentoring School *M (n=38)*	Non-Intervention School *M (n=120)*	*t*	*p*	*d*
Discipline					
Out of School Suspension	.18(.39)	.42(.87)	-2.39	.018*	
Office Discipline Referrals	147.00(57.02)	184.11(68.47)	-3.19	.002*	0.59
Minor Classroom Referrals	235.82(65.21)	242.02(70.36)	-4.80	.633	
AET-3 TRS					
Total Protective Factor	98.77(19.00)	90.48(23.50)	2.15	.035*	0.39
Respect For Authority	12.11(2.92)	10.68(3.13)	4.20	.001*	0.47
Positive Communication	10.17(3.02)	9.88(2.92)	0.515	.608	
Effective Learner	10.40(3.35)	11.19(3.59)	-1.21	.231	
Conflict Resolution	13.86(4.10)	12.33(4.12)	1.94	.057	
Goal Orientation	13.46(3.00)	10.63(4.03)	4.52	.001*	.80
Emotional Regulation	11.77(2.41)	9.67(3.19)	4.21	.001*	0.74
Positive Relationships	14.20 (4.05)	12.93(4.20)	1.61	.112	
Life Satisfaction	12.80(3.34)	13.18(7.89)	-.42	.68	
AET-3 SRS					
Total Protective Factor	105.25(16.88)	92.24(19.49)	3.56	.001*	0.71
Respect For Authority	14.20(3.23)	11.39(3.28)	4.30	.001*	0.86
Positive Communication	12.82(2.79)	11.17(3.14)	2.76	.008*	
Effective Learner	12.32(3.32)	12.06(3.58)	.372	.712	
Conflict Resolution	14.07(3.23)	12.56(3.75)	2.16	.036*	0.43
Goal Orientation	12.43(2.83)	11.12(3.76)	3.63	.001*	0.39
Emotional Regulation	12.46(2.46)	10.91(3.00)	2.87	.006*	0.57
Positive Relationships	13.75(3.34)	12.47(3.25)	1.84	.073*	
Life Satisfaction	12.18(2.26)	10.58(2.60)	3.28	.002*	0.66
Self-Efficacy					
General Self Efficacy	23.36(6.76)	18.68(5.73)	3.39	.002*	0.72
Academic					
Total Academic	87.10(.85)	83.80(.94)	2.67	.007*	0.39

* indicates statistical significant with the Benjamini-Hochberg Correction for Multiple Comparisons

Table 13.

Results of Paired Sample t Tests and Means (SD) for Pre–Post Outcomes for MARS Mentoring Intervention Students and Non-intervention School Student Samples.

Variable	MARS Intervention Students (n=13)					(Non-intervention School Students n=57)				
	Pretest *M*	Posttest *M*	*t*	*p*	*d*	Pretest *M*	Posttest *M*	*t*	*p*	*d*
Discipline										
OSS	.08(.28)	.15(.38)	1.00	.337		0.07(0.26)	0.46(0.85)	3.47	.001*	
ODR	73.77(31.32)	135.00(57.56)	6.07	.002*		68.67(31.79)	198.74(65.79)	18.69	.001*	
Minor	122.31(68.34)	218.77(69.88)	6.87	.001*		125.65(76.58)	246.05(73.67)	13.56	.001*	
AET-3 TRS										
TPF	82.00(24.98)	99.00(6.50)	3.44	.005*	0.93	85.54(22.27)	86.61(21.76)	1.04	.301	
RFA	10.08(2.60)	11.46(2.90)	1.92	.079		10.61(3.24)	10.68(3.26)	0.28	.781	
COMM	9.00(2.94)	9.62(2.90)	0.64	.533		9.42(2.85)	9.77(2.99)	1.64	.108	
EL	10.46(3.02)	11.62(3.62)	1.32	.209		10.93(3.99)	10.70(3.55)	-1.04	.304	
CR	11.84(4.83)	13.46(4.29)	1.90	.082		11.96(3.92)	11.74(3.95)	-1.00	.322	
GO	9.15(4.08)	13.38(3.86)	3.96	.002*	0.40	9.65(3.81)	9.74(3.75)	0.35	.725	
ER	8.77(2.65)	11.85(2.48)	3.86	.002*	0.31	8.67(2.67)	9.30(3.10)	3.05	.004*	0.22
PR	11.23 (4.6)	15.00(4.88)	3.04	.01*	.80	12.05(4.90)	12.26(4.23)	0.65	.516	
LS	11.46(4.12)	12.62(4.05)	1.54	.15		12.25(3.89)	12.42(3.52)	0.61	.546	
AET-3 SRS										
TPF	85.62(17.51)	108.46(18.35)	5.14	.001*	1.27	87.35(16.73)	89.60(18.84)	1.91	.301	
RFA	11.15(3.88)	14.54(4.07)	2.57	.025*	0.42	11.53(2.94)	11.12(2.86)	-1.33	.19	
COMM	10.69(2.78)	12.54(2.37)	1.98	.071		10.79(3.09)	11.04(3.35)	1.00	.322	
EL	11.15(3.21)	12.46(3.84)	1.78	.101		11.40(3.40)	11.67(3.21)	0.99	.328	
CR	11.62(3.66)	14.77(3.83)	3.02	.011*	0.84	11.95(3.10)	12.04(3.61)	0.31	.761	
GO	10.31(2.69)	14.31(2.50)	5.00	.001*	0.34	10.09(2.99)	10.58(3.98)	1.54	.13	
ER	9.54(2.30)	12.38(2.63)	3.67	.003*	0.28	9.89(2.58)	10.67(2.71)	2.95	.005*	0.29
PR	10.69(3.77)	14.31(3.04)	4.63	.001*		11.18(3.49)	11.68(3.49)	1.84	.071	
LS	10.46(2.18)	13.15(1.91)	4.12	.001*	1.31	10.53(2.51)	10.81(2.40)	1.48	.146	
Self-Efficacy										
GSE	16.08(3.45)	26.23(5.82)	4.84	.001*	2.12	15.56(3.65)	17.56(5.23)	4.05	.001*	0.44
Academic										
TA	77.10(9.76)	87.50(9.65)	2.42	.033		78.70(9.90)	82.10(9.41)	1.14	.278	

* indicates statistical significant with the Benjamini-Hochberg Correction for Multiple Comparisons

Table 14.1

PSM Regression Analyses Examining Intervention Effects on Self-Efficacy

Outcome - predictors	Models with covariates	R^2	Unstandardized		t
			B	SE	
Time 2 GSE-		.48			
Time 1 GSE + Intervention	(Constant)		5.58	2.47	2.25
Status	Time 1 GSE		8.27	1.42	5.85
(n = 70)	Intervention Status		.77	.15	4.99

* indicates statistical significant with the Benjamini-Hochberg Correction for Multiple Comparisons

Table 14.2

PSM Regression Analyses Examining Intervention Effects on Discipline

Outcome - predictors	Models with covariates	R^2	Unstandardized		*t*
			B	SE	
Time 2 OSS -		.07			
Time 1 OSS + Intervention	(Constant)		.41	.11	3.90
Status	Time 1 OSS		.65	.36	1.82
(*n* = 70)	Intervention Status		-0.31	.24	-1.30
Time 2 ODR-		.50			
Time 1 ODR + Intervention	(Constant)		106.55	14.67	7.26
Status	Time 1 ODR		1.34	.19	7.02
(*n* = 70)	Intervention Status		-70.59	15.17	-4.65*
Time 2 Minor -		.40			
Time 1 Minor +	(Constant)		170.13	13.94	12.20
Intervention Status	Time 1 Minor		.60	.09	6.51
(*n* = 70)	Intervention Status		-25.26	17.70	-1.43

* indicates statistical significant with the Benjamini-Hochberg Correction for Multiple Comparisons

Table 14.3

PSM Regression Analyses Examining Intervention Effects on AET-3 Teacher Scales

Outcome - predictors	Models with covariates	R^2	Unstandardized		t
			B	SE	
Time 2 TPF -		.81			
Time 1 TPF + Intervention	(Constant)		12.38	4.69	2.64
Status	Time 1 TPF		.87	.05	16.50
(*n* = 70)	Intervention Status		15.46	3.04	5.08*
Time 2 RFA -		.63			
Time 1 RFA + Intervention	(Constant)		2.10	.85	2.48
Status	Time 1 RFA		.81	.08	10.65
(*n* = 70)	Intervention Status		1.21	.60	2.00
Time 2 COMM-		.56			
Time 1 COMM +	(Constant)		2.44	.83	2.94
Intervention Status	Time 1 COMM		.78	.08	9.30
(*n* = 70)	Intervention Status		.17	.61	.28*
Time 2 CR -		.77			
Time 1 CR + Intervention	(Constant)		1.48	.74	1.99
Status	Time 1 CR		.86	.06	14.83
(*n* = 70)	Intervention Status		1.83	.60	3.04*
Time 2 GO -		.70			
Time 1 GO + Intervention	(Constant)		2.1	.73	2.86
Status	Time 1 GO		.79	.07	11.35
(*n* = 70)	Intervention Status		4.01	.68	5.91*
Time 2 ER -		.66			
Time 1 ER + Intervention	(Constant)		1.60	.77	2.07
Status	Time 1 ER		.89	.08	10.54
(*n* = 70)	Intervention Status		2.46	.57	4.31*
Time 2 PR -		.67			
Time 1 PR + Intervention	(Constant)		3.55	.85	4.18
Status	Time 1 PR		.72	.06	11.20
(*n* = 70)	Intervention Status		3.33	.80	4.18*
Time 2 LS -		.67			
Time 1 LS + Intervention	(Constant)		3.17	.83	3.80
Status	Time 1 LS		.76	.06	11.76
(*n* = 70)	Intervention Status		.79	.64	1.22
Time 2 EL -		.74			
Time 1 EL + Intervention	(Constant)		2.08	.68	3.05
Status	Time 1 EL		.79	.06	13.54
(*n* = 70)	Intervention Status		1.28	.57	2.26*

* indicates statistical significant Benjamini-Hochberg Correction for Multiple Comparisons

Table 14.4

PSM Regression Analyses Examining Intervention Effects on AET-3 Student Scales

Outcome - predictors	Models with covariates	R^2	Unstandardized		t
			B	SE	
Time 2 TPF -		.73			
Time 1 TPF + Intervention	(Constant)		8.9	6.74	1.32
Status	Time 1 TPF		.92	.08	12.23
(*n* = 70)	Intervention Status		20.47	3.23	6.33*
Time 2 RFA -		.41			
Time 1 RFA + Intervention	(Constant)		4.47	1.3	.00
Status	Time 1 RFA		.58	.11	5.31
(*n* = 70)	Intervention Status		3.63	.81	4.50*
Time 2 COMM-		.58			
Time 1 COMM +	(Constant)		2.48	.96	.01
Intervention Status	Time 1 COMM		.79	.08	9.35
(*n* = 70)	Intervention Status		1.58	.65	2.42*
Time 2 CR -		.58			
Time 1 CR + Intervention	(Constant)		2.02	1.17	.09
Status	Time 1 CR		.84	.09	8.91
(*n* = 70)	Intervention Status		3.01	.76	3.94*
Time 2 GO -		.62			
Time 1 GO + Intervention	(Constant)		.93	1.1	.84
Status	Time 1 GO		.96	.10	9.2
(*n* = 70)	Intervention Status		3.52	.77	4.54*
Time 2 ER -		.48			
Time 1 ER + Intervention	(Constant)		3.63	.99	3.65
Status	Time 1 ER		.71	.10	7.33
(*n* = 70)	Intervention Status		1.97	.62	3.16*
Time 2 PR -		.64			
Time 1 PR + Intervention	(Constant)		3.20	.80	3.98
Status	Time 1 PR		.72	.07	9.74
(*n* = 70)	Intervention Status		2.39	.46	5.19*
Time 2 LS -		.64			
Time 1 LS + Intervention	(Constant)		3.20	.81	3.98
Status	Time 1 LS		.72	.07	9.75
(*n* = 70)	Intervention Status		2.39	.46	5.19*
Time 2 EL -		.64			
Time 1 EL + Intervention	(Constant)		2.68	.88	3.06
Status	Time 1 EL		.79	.07	10.77
(*n* = 70)	Intervention Status		.99	.63	1.60

* indicates statistical significant with the Benjamini-Hochberg Correction for Multiple Comparisons

Table 14.5

PSM Regression Analyses Examining Intervention Effects on Grades

Outcome - predictors	Models with covariates	R^2	Unstandardized		t
			B	SE	
Time 2 Academic -		.11			
Time 1 Academic +	(Constant)		1.96	.37	5.27
Intervention Status	Time 1 Acad		.26	.11	2.33
(n = 70)	Intervention Status		-.48	.27	-1.76

* indicates statistical significant with the Benjamini-Hochberg Correction for Multiple Comparisons

FIGURES

Figure 1.
Distribution of Matched Treatments- Jitter Plots
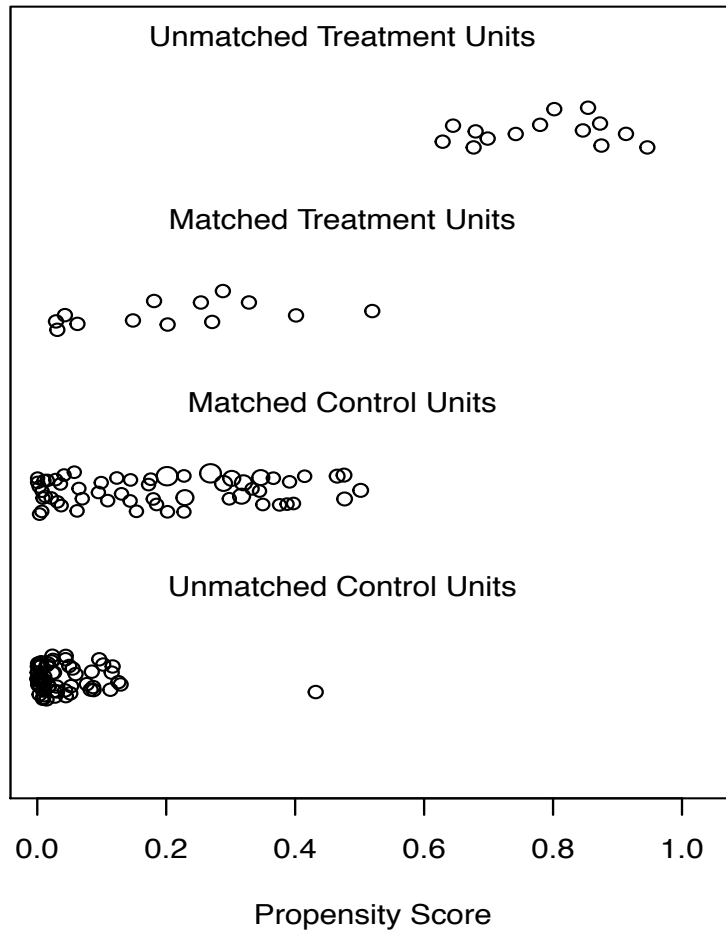
Figure 2.

Distribution of Propensity Scores- Histograms
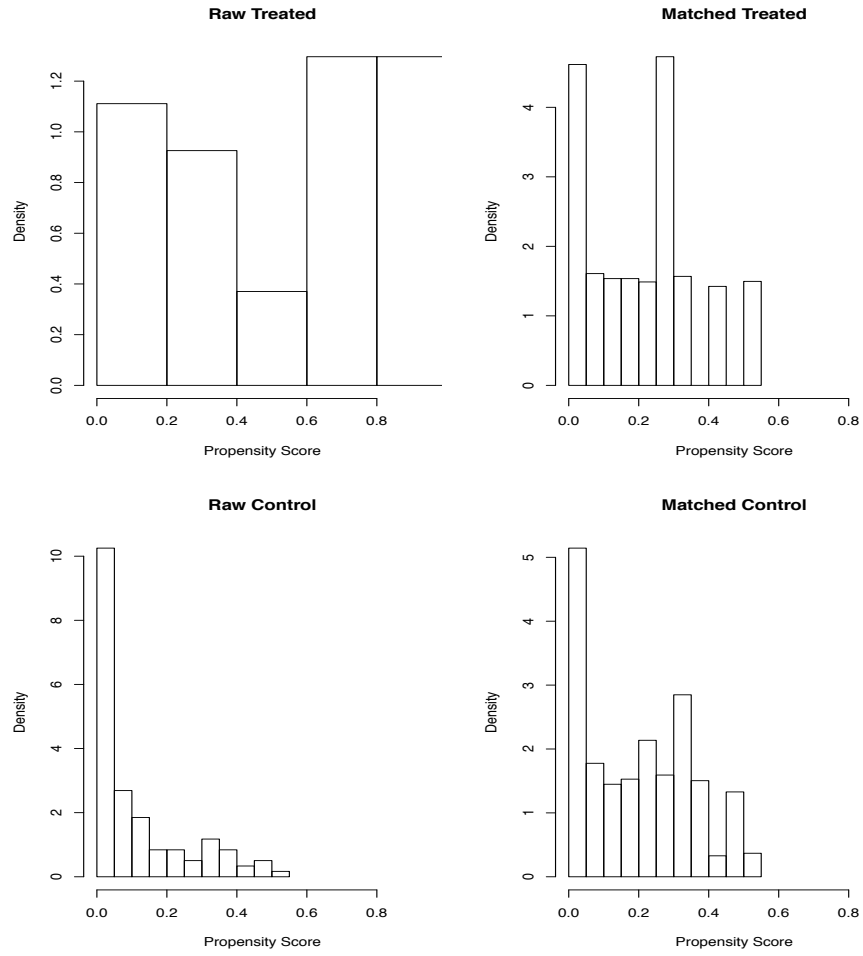
APPENDICES

Appendix A: MARS Mentoring- Positive Reflection

Positive Reflection

Name a strength you have and an example of when you used it to help you be successful.

1. _____
   _____

   *Example:*_____
   _____
   _____

2. _____
   _____

   *Example:*_____
   _____
   _____

3. _____
   _____

   *Example:*_____
   _____
   _____

What is something others have told you that you do well?

_____
_____
_____
_____

In what ways do others (friends, teachers, family members) help you to be successful?

_____
_____
_____
_____

What kinds of strengths do you think you have, but do not use very often?

_____
_____
_____
_____

Appendix B: MARS Mentoring- Honest Reflection

Honest Reflection

Name the rules that your school has and an example of what it looks like to you!

1. _____

2. _____

3. _____

Which rules are the hardest for you or cause the most problems for you at school:

_____

_____

How often does the rule seem to cause problems for you (circle one): **Weekly   Daily   Hourly**

Does something happen that causes you to have trouble?

_____

_____

_____

Do you think you need to change this behavior?   **Yes   No**

On the following scale, how ready are you to change this behavior

Not ready to Change	Maybe Ready to change	Not sure	Somewhat ready for change	Very ready for change

What is the worst thing that could happen if you decided to change this behavior?

_____

_____

_____

What is the best thing that could happen if you decided to change this behavior?

_____

_____

_____

Appendix C: MARS Mentoring- Values Card Sort

Values Card Sort

Please sort these cards into three piles:
Pile 1 = Very Important
Pile 2 = Important
Pile 3 = Less Important

Now. Pick out your three most important values from the Very Important pile

Value 1 _____

Value 2 _____

Value 3 _____

Tell me a little bit more about your most important values
1. Why did you chose each of these? 2. What makes them so important to you?

Value 1 (   )

_____

_____

_____

Value 2 (   )

_____

_____

_____

Value 3 (   )

_____

_____

_____

Defining a Goal

From the Honest Reflection Sheet, please list the behavior you are focusing on.

_____

_____

Please list at least two different replacement behaviors that you could use instead.

1. _____

2. _____

3. _____

How are you going to track your goal? Please list at least one type of data you will use.

1. _____

2. _____

I will improve my ability to **(behavior to focus on)**_____

_____by **(replacement behavior)**

_____

_____and measure my progress by **(data**

type) _____.

On the following scale, how ready are you to seriously try your goal?

Not ready to Change	Maybe Ready to change	Not sure	Somewhat ready for change	Very ready for change

Why are you ready to try your goal?

_____

_____

_____

On the following scale, how confident are you that you can achieve your goal?

Not confident	A little confident	Somewhat Confident	Fairly confident	Very confident

Why are you this confident that you can achieve your goal?

_____

_____

_____

Appendix E: MARS Mentoring- Looking at your Data

Looking at your Data

1. **What data did you use to track your progress?**

   _____
   _____

2. **According to your data, what days were good?**

   _____

   Do you remember why? What did you do/say/think/feel?

   _____
   _____
   _____
   _____

3. **According to the data, what days were not so good?**

   _____

   Do you remember why?

   _____
   _____
   _____

   What could you have done differently?

   _____
   _____
   _____

You met your goal!
   What helped you reach it?

   _____
   _____

You did not reach your goal this week.
   What was something that got in the way of you reaching your goal?

   _____
   _____

Appendix F: MARS Mentoring- Goal Reformation

Goal Reformation

What can we do to reframe your goal for the next week?

_____
_____

From the Honest Reflection Sheet, please list the same/new behavior you are focusing on this week.

_____

Please list at least two different replacement behaviors that you could use instead.

1. _____
2. _____
3. _____

How are you going to track your goal? Please list at least one type of data you will use.

1. _____
2. _____

I will improve my ability to **(behavior to focus on)**_____
_____by **(replacement behavior)**
_____
_____and measure my progress by **(data**
type) _____.

Chose 6 Items from your REWARD Grid!
1. _____ 2. _____ 3. _____
4. _____ 5. _____ 6. _____
(Forced Choice Activity Assessment)

This week when I meet my goal, I would like to...

_____
_____
_____

On the following scale, how ready are you to seriously try your goal?

Not ready to Change	Maybe Ready to change	Not sure	Somewhat ready for change	Very ready for change

On the following scale, how confident are you that you can achieve your goal?

Not confident	A little confident	Somewhat Confident	Fairly confident	Very confident

Appendix G : MARS Mentoring Training Handout- Questions that Evoke Change Talk.

Questions that Evoke Change Talk

Desire for Change
- What are your thoughts about how things are going in your classroom with Ms. A?
- How do you feel about (specific behavior)? How much does that concern you?
- Tell me about things you want to be different.
- What do you think will happen if you don't make a change?

Ability/Optimism About Change
- What makes you think that if you decide to make a change that you could do it?
- What encourages you to feel like you can change if you want to?
- What do you think would work for you, if you decided to change?
- What would make you feel even more confident that you could make a change?
- What personal strengths do you have that will help you succeed?

Reasons/Benefits of Change
- How would you like things to different?
- What would be some good things about improving (specific behavior)?
- If you could make this change immediately, by magic, how would things be different?
- What would be the advantages of making this change?

Need/Disadvantage Of Status Quo
Problem Recognition
- What makes you think that you may need to make a change?
- What things make you think that (specific behavior) is a problem?
- What difficulties have you had in relation to (specific behavior)?
- In what ways has this been a problem for you?
- What makes you feel like you should do something different?

Concern
- What worries you about (specific behavior)?
- What can you imagine happening to you as a result of (specific behavior)?
- In what ways does this concern you?
- What do you think will happen if you don't make a change?

Commitment/Intention to Change
- If you could easily make any changes, what would be different?
- Where are you in terms of changing your behavior at this point?
- I can see that you're feeling stuck at the moment. What's going to have to change?
- Never mind the "how" for right now, what do you want to have happen?
- How important is this to you? How much do you want to do this?
- What would you be willing to try?
- What do you intend to do?

Appendix H: MARS Mentoring Training Handout- Strategies for Evoking Change Talk

7 Strategies for Evoking Change Talk

1. Ask Evocative Questions
Ask open questions, the answer to which is change talk.
Why would you want to make this change? (Desire)
How might you go about it, in order to succeed? (Ability)
What are the three best reasons for you to do it? (Reasons)
How important is it for you to make this change? (Need)
So what do you think you'll do? (Commitment)

2. Ask for Elaboration
When a change talk theme emerges, ask for more detail.
"In what ways?"
"What else?"

3. Ask for Examples
When a change talk theme emerges, ask for specific examples.
"When was the last time that happened?" "Give me an example."

4. Look Back & Forward
Looking back on the positive: Ask about a time before the current concern emerged.
"How were things better, different?"
Taking a glance into the future: Ask what may happen if things continue as they are (status quo).
"If you were 100% successful in making the changes you want, what would be different?"
"How would you like your life to be five years from now?"

5. Query Extremes
Ask questions that challenge the potential outcomes:
"What are the worst things that might happen if you don't make this change?"
"What are the best things that might happen if you do make this change?"

6. Use Change & Confidence Rulers
Ask, "On a scale from 0 to 10, how important is [target change] – where 0 is not at all important, and 10 is extremely important?

Not at all Important					Important					Extremely Important
0	1	2	3	4	5	6	7	8	9	10

Follow up: And why are you at ___ and not zero? What might happen that could move you from ____ to [higher score]? Instead of "how important" (need), you could also ask how much you want (desire), or how confident you are that you could (ability), or how committed are you to ____ (commitment).
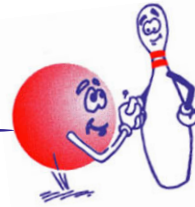
7. Explore Goals and Values
Ask what the person's guiding values are. What do they want in life? Using a values card sort can be helpful here. If there is a "problem" behavior, ask how that behavior fits in with the person's goals or values. Does it help realize a goal or value, interfere with it, or is it irrelevant?

Rolling With Resistance

1. Simple Reflections
When in doubt, use a simple reflection to acknowledge the person's perspective or feeling. This invites further exploration, saps the energy of resistance, and avoids the trap of taking sides.
STUDENT: I don't get why we have to do this. I am just fine.
MENTOR: It's frustrating that people don't always understand that you are doing okay.

2. Amplified Reflections
These as exaggerated reflections can be very effective but must be delivered in a matter-of-fact manner without hint of sarcasm.
STUDENT: I have literally no problems at school.
MENTOR: You never experience anything difficult at school.

3. Double-Sided Reflections
These responses are excellent ways to respond to ambivalence. It involves including a summary of both sides of the ambivalence in a single response.
STUDENT: I just want to get to level 5 and get out of here.. I hate this place, but I can't seem to get past level 2.
MENTOR: I can see your predicament. On the one hand, you feel like your stuck at level 2, but on the other hand, you know that you want to transition out by passing levels quickly.

4. Shifting Focus
Rather than pushing forward through resistance (as it often invites us to do) a better tact is to acknowledge it and then shift attention to a new direction.
STUDENT: You're probably going to be mad at me. I know I got a 20% this week.
MENTOR: I'm not going to be mad. What do you think would be helpful for us to discuss this week?

5. Reframing
This classic counseling strategy offers a new, more positive, interpretation on a statement made by the student.
STUDENT: I just get so angry. I feel myself getting so angry with her.
MENTOR: You are able to recognize when you are getting angry.

6. Agreeing with a Twist
A simple reflection with a reframe. The intent is to acknowledge the student's position with a slightly different spin or direction.
STUDENT: I know what I am going to do. Nobody can tell me how to react in a situation.
MENTOR: You are confident in how you handle situations. You know what you are doing. Can you tell me some of the good things you do during a tough situation that seem to work?

7. Emphasizing Personal Choice and Control
It's common for people to respond with resistance when they feel their choices are limited or threatened. The best response when you sense a student is threatened in this way is to simply state the obvious, that ultimately it's their decision about what they do.
STUDENT*:* My mom is in control of my life. She doesn't let me make any decisions on my own.
MENTOR*:* It seems like you have no choice here which is frustrating. When it gets down to it, though, what your life ends up being, how successful, is up to you.

8. Coming Alongside
This is an advanced strategy for evoking change talk that involves having the consultant take the side against change. Much like reverse psychology, the rationale is that by arguing against change, the mentor makes it more like the student will respond by arguing for change. This should be used cautiously, especially as you are learning the method.
STUDENT: I don't think these strategies are going to work.
MENTOR: It's seems pretty hopeless, like why even try if there's a possibility it's not going to work.

Appendix J: MARS Mentoring- Reward Grid

My REWARD Grid

What do I Want to Work Towards?

Items	Activities	Edibles	Social	Other

Chose 6 Items from your REWARD Grid!

1. _____ 2. _____ 3. _____
4. _____ 5. _____ 6. _____

(Forced Choice Activity Assessment)

This week when I meet my goal, I would like to...

_____

_____

_____

Appendix K: MARS Mentoring- Take Away

Take-Away

My goal this week is:

_____
_____
_____
_____
_____

Ways my teacher can help me:

1. _____
   _____
   _____

2. _____
   _____
   _____

VITA

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