Improving Self-Regulation of Youth Residing in Residential Care

by

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Abstract

This thesis investigated the modification of a curriculum-focused self-regulation skills training program for use within a community-based Teaching Family Model group home. A single case study design was used. One male youth nine-years-of-age participated in five weekly self-regulation skills training sessions adapted from The Zones of Regulation curriculum (Kuypers, 2011). Pre- and posttest measures were taken using the Difficulties in Emotion Regulation Scale (DERS; Gratz & Roemer, 2004). Dependent variables were assessed using event recording via the Teaching Family Model’s point card motivation system within the home. Descriptive and visual analysis indicated that the modified Zones program was not successful in increasing the participant’s self-regulation skills. However, a decrease was seen in the participant’s problematic behaviours. Other successes that the modified Zones program may have contributed to were noted during the course of the study, such as the participant’s rapid advancement through the Teaching Family Model motivation system, increased emotional expression with staff, and age-appropriate emotional responses. Future research should continue to investigate and develop effective and adaptable methods for teaching self-regulation skills to at-risk and vulnerable youth across a variety of settings.
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Chapter I: Introduction

Emotional regulation is defined by Thompson (1994) as “the intrinsic and extrinsic processes responsible for monitoring, evaluating, and modifying emotional reactions” (p.27, as cited in Waters & Thompson, 2014). Often associated with terms such as emotional control, self-control, or self-regulation, emotional regulation is a highly complex set of skills that begins to develop in early childhood (Marusak, Martin, Etkin, & Thomason, 2015). Emotional regulation requires one to be aware of one’s own emotions, accurately recognize the emotions of others, express emotions appropriately for the setting, and respond to stimulating or emotional situations fittingly (Kuypers, 2011). The complex skills involved in emotional regulation incorporate anger management, understanding social etiquette, emotional expression, coping strategies, and discernment. These skills, which are often assumed to be generic social norms, are actually learned through observational and social learning in the family environment (Marusak et al., 2015).

For youth currently living in residential care, the type of environment and relationships conducive to developing the skills required for emotional regulation may not have been present in early childhood. Research is showing that exposure to trauma, particularly in early life, can profoundly alter the way emotional information is processed in the brain and the body (Marusak et al., 2015). Children exposed to trauma display increased attention to and difficulty separating themselves from emotional incitements (Marusak et al., 2015), and are at a higher risk for mental health disorders later on (e.g., depression, anxiety, and PTSD; Marusak et al., 2015; Shapero & Steinberg, 2013). In addition, exposure to stressful or traumatic events does not end when a child is placed in care. Temporary placements, changing staff, exposure to other high-risk youth, and lack of family involvement all contribute to emotional turmoil, which can further exacerbate challenges with emotional regulation (Sala Roca, Garcia, Biarnes, & Rodriguez, 2009).

In 2011, Leah Kuypers published a classroom-based curriculum called The Zones of Regulation (the Zones) to help students develop emotional regulation skills. The Zones teaches eight different coping and problem solving strategies, as well as lessons in emotion recognition and awareness. It is thought that the concrete coping skills and structured interactive lessons of the Zones program will lend well to the skills-based reinforcement system of the Teaching Family Model.

The Teaching Family Model (TFM) is a community-based family style treatment environment (De Wein & Miller, 2009) that facilitates humane, effective, individualized, satisfactory, cost efficient, replicable, and integrated treatment for youth (Fixsen et al., 2007, p. 98). The TFM is built on a process of giving/receiving instruction, behavioural rehearsal and positive practice, feedback, and reinforcement (Kingsley, 2006). In this manner, the model is able to individually focus on specific skill deficits for each youth. An intricate point-based token economy system allows youth to earn positive points for appropriate behaviour and skill acquisition, while also losing points as a response cost measure for inappropriate or problematic behaviour. These points are then put towards earning privileges, and movement into higher levels of freedom and responsibility within the model. The structured format of the point system along with the family style environment and relationship-based teaching interactions has made the TFM one of the most researched and generalizable models of residential care with various populations (Larzelere, Daly, Davis, Chmelka, & Handwerk, 2004).

This project proposes to investigate the modification of a classroom-based program for one-on-one use with children in a residential treatment home. It is hypothesized that modifying
and combining The Zones of Regulation program with the Teaching Family Model (TFM) will increase the emotional regulation skills of the youth, and increase the occurrences of their current TFM target skills, while decreasing problematic behaviour.

**Word Count: 597**
Chapter II: Literature Review

As this study proposed to investigate the use of a modified self-regulation skills training program in combination with the Teaching Family Model for youth in care, a variety of sources were explored for literature on the topic. To fully understand the aim of this project research was completed on the history of self-regulation in the literature, as well as current definitions and distinctions. Factors connected to the target population of protected youth were also explored including effects of trauma, stressful environments, and mental health concerns. Regulation training programs were examined including The Zones of Regulation (Kuypers, 2011) and Emotion Regulation Training (Schuppert et al., 2009). Finally, the history of the Teaching Family Model and its effectiveness in treating behavioural problems was investigated to determine if a combined program would be feasible.

Regulation – Definitions and Distinctions

The concept of self-regulation has been studied since as early as the mid-1960s, mainly through the lens of developmental psychology. Articles such as Bem’s (1967) research on the development of self-instruction and verbal self-control in children, and Ainsworth and Bell’s (1974) research on the development of competency in children highlight a long standing interest in the growth and expression of regulation skills in youth.

Despite almost five decades of research on the topic, self-regulation still remains a difficult skill to address and define. In her review of the antecedents of self-regulation skills, Kopp (1982) noted various definitions from prior literature used to describe the complex construct. Many of the definitions Kopp noted contained equally complex multidimensional skills as an element of self-regulation, and the definitions varied in their content. Some definitions included the ability to follow instructions, while others focused on the ability to adjust to situational demands or delay gratification (Kopp, 1982). While it is clear that self-regulation contains many sub-skills, these complex definitions make operationalizing self-regulation difficult for the purpose of teaching it in a systematic manner. No universal definition yet exists for such a multi-faceted skill.

In more recent literature, terms such as self-control, anger management, emotional regulation, impulse control, and emotional reactivity are used somewhat interchangeably (Kuypers, 2013). Most confusing perhaps is the distinctions between self-regulation, emotional regulation, and emotional reactivity. These three terms are strongly correlated in current self-regulation research, but refer to distinctly different portions of the regulation process. A clearer understanding of these related terms is necessary for the continued advancement of both regulation research and treatment fidelity in applied settings.

Self-Regulation. In a well-rounded explanation compared to those noted in Kopp’s (1982) review, Bronson (2001) described self-regulation as the behavioural expression of one’s emotional control in a socially adaptive way. Kuypers (2013, p. 1) further interprets Bronson’s description to define self-regulation as the ability to behave in a socially appropriate manner for a given situation, while internally maintaining control of one’s impulses and emotions. Bronson’s description of self-regulation, while broad, fully encapsulates the complexity of this construct and puts a greater focus on the behavioural component of the regulation process. Bronson’s behaviourally focused explanation also provides a sound base for the concept of emotional regulation as a separate but related process.
**Emotional Regulation.** Cole, Martin, and Dennis (2004, p. 320) defined emotional regulation, or emotional control, as a measurement of the effect emotions have on attention, and how emotions either facilitate or impair the strategic planning and reasoning processes. Thompson (1994) defined emotional regulation as both an internal and external process designed to monitor and regulate emotional reactions (p. 27). Both of these definitions highlight emotional regulation as a cognitive process, yet acknowledge the component of behavioural expression. Emotional regulation can be viewed as the cognitive component of the regulation process. It is the ability to internally process emotional stimuli and consciously employ effective coping strategies for the purpose of modifying behavioural reactions.

**Emotional Reactivity: A Moderating Factor.** While both emotional and self-regulation are similar in function and description, there is a third concept that is equally important to the development of regulation as a whole. Emotional reactivity, as defined by Nock, Wedig, Holmberg, and Hooley (2008, p. 107), is an individual’s personal experience of emotions. This includes the range of triggering stimuli, as well as the intensity, frequency, and duration of emotions when felt. Current research shows strong connections between self-regulation and emotional reactivity. While the connections are complex, it is important to note the role that emotional reactivity can play in psychological (Shapero & Steinberg, 2013) and behavioural problems (Carlo et al., 2012). High levels of self-regulation are consistently positively linked to socially competent and prosocial behaviours (Carlo et al., 2012). High levels of emotional reactivity however, can be associated with both prosocial and problematic behaviours, depending on the associated emotion (i.e., guilt vs. anger) and the level of self-regulation present (Carlo et al., 2012).

Carlo, Crockett, Wolff, and Beal (2012) examined the effects of emotional reactivity, self-regulation, and pubertal timing on the development of prosocial behaviours in youth. Eight hundred and fifty participants were followed from 11 years of age until 15 years of age using information from the National Institute of Child Health and Human Development (NICHD) Study of Early Child Care and Youth Development (SECCYD). Carlo et al. measured emotional reactivity, pubertal timing, self-regulation, and family income-to-needs ratio at age 11. The occurrence of prosocial behaviours was measured at age 11 and again at age 15. All measurements were conducted using maternal reports except for pubertal timing, which was assessed by physical exam. Results of the longitudinal study showed that higher levels of emotional reactivity were consistently related to lower levels of self-regulation and prosocial behaviours. High levels of self-regulation, however, were positively related to prosocial behaviours both at home and with peers, concurrently and over time. Self-regulation and emotional reactivity were consistent predictors of prosocial behaviour over time. Interestingly, moderate levels of emotional reactivity were seen to be associated with high levels of prosocial behaviour, indicating that emotional reactivity may have an optimal level of functioning. Earlier maturation was seen to be associated with prosocial behaviours at home, but not with peers. Prior research conducted by Carlo, Crockett, Randall, and Roesch (2007) indicated the transition through puberty was linked to increases in emotional, physiological, and stress reactivity, possibly explaining why decreases are seen in prosocial behaviour during adolescence. Carlo et al. (2012) state that youth with high levels of emotional reactivity may display lower levels of prosocial behaviour and be at a greater risk for self-regulation deficits.

In a similar study on emotional reactivity and psychological outcomes, Shapero and Steinberg (2013) studied how emotional reactivity and exposure to household stress in childhood are predictive of psychological problems later on. Also using information from the SECCYD,
Shapero and Steinberg collected data on 958 youth from newborn to age 15 at regular intervals. Parents completed measures on emotional reactivity, household chaos, household income, and the Child Behaviour Checklist (CBCL; Achenbach, 2001, as cited in Shapero & Steinberg, 2013). Youth participants completed the Youth Self-Report (YSR; Achenbach & Rescorla, 2001, as cited in Shapero & Steinberg, 2013) at age 15. Results of the study found that higher levels of emotional reactivity and lower household incomes were associated with emotional and behavioural problems in adolescents. Results also indicated that the higher the level of emotional reactivity at childhood, the more likely family chaos was to have a significant impact. Shapero and Steinberg’s results suggest that individuals with high emotional reactivity may be at an increased risk for behavioural and psychological problems in adolescence if their environment is exceptionally chaotic.

Regulation is a complex construct that requires both cognitive organization and appropriate behavioural expression. It is a two-part process involving both emotional and self-regulation skills; skills that begin to develop in early childhood through observational and social learning in the family environment (Marusak, Martin, Etkin, & Thomason, 2015). These skills, such as the ability to accurately recognize personal emotions and the emotions of others, the ability express one’s self appropriately both verbally and physically, and the ability to respond to stimulating situations adaptively and appropriately (Kuypers, 2011), are needed to facilitate appropriate relationships throughout life and manage one’s own level of emotional reactivity.

Caregiver interaction is the primary vessel for the development of these skills (Marusak et al., 2015). Exceptionally chaotic, stressful, or unhealthy living environments may negatively impact a child’s emotional reactivity level and subsequently influence the development of their regulation skills (Shapero & Steinberg, 2013). Clearer understanding of the components of regulation and their effects on behaviour will assist in developing training programs that effectively address self-regulation deficits.

**Trauma and the Development of Self-Regulation**

Recent research has shown that traumatic experiences have profound effects on both neurological and psychological development. In particular, exposure to trauma in early life can profoundly alter the way in which emotional stimuli are processed and responded too (Marusak et al., 2015). Children exposed to trauma display increased attention to and difficulty separating themselves from emotional incitements (Tottenham et al., 2010) and are at a higher risk for mental health disorders later on (e.g., depression, anxiety, and PTSD; Marusak et al., 2015; Shapero & Steinberg, 2013). Understanding the depth to which traumatic experiences can cause deficits in regulation is essential in designing comprehensive and effective programs to teach and improve self-regulation skills.

Marusak, Martin, Etkin, and Thomason (2015) studied the regulation of emotional conflict in a sample of urban adolescents and children exposed to trauma. In total, thirty youth participated in the study; 14 trauma-exposed youth, and 16 sex, age, and IQ matched comparison youth. Participants completed an emotional conflict task while simultaneously undergoing a functional MRI scan. The emotional conflict task required participants to categorize pictures based on the facial expression displayed, while ignoring an emotion word printed on top. Some emotion words were congruent with the expression displayed, while others were incongruent, triggering emotional conflict. Participants were assessed using the Children’s Trauma Assessment Center Screen Checklist (Michigan Trauma Assessment Center, as cited in Marusak et al. 2015), and those who selected one or more items on the scale were categorized as trauma-
exposed. Participants also completed three self-report measures including the Screen for Child Anxiety-Related Emotional Disorders (SCR; Birmaher et al., 1997, as cited in Marusak et al., 2015), the Children’s Depression Inventory (CDI; Kovacs, 1985, as cited in Marusak et al., 2015), and the Behavioural Inhibition and Activation Scales (BIS/BAS; Carver & White, 1994, as cited in Marusak et al., 2015). Results of the BIS/BAS showed that trauma-exposed youth had lower levels of reward responsiveness. Trauma exposed youth also typically responded faster than the comparison group, taking less time to analyze and categorize the pictures. While comparison youth showed improvements in accuracy and reaction time for repeated incongruent trials, trauma-exposed youth did not show any improvement in accuracy and showed a decrease in reaction time. The fMRI scans showed greater levels of activity in the amygdala, thought to deliver the fight/flight/freeze survival response in the brain, in trauma-exposed youth than comparison youth during incongruent trials. Overall, Marusak et al. (2015) stated that trauma-exposed youth experienced greater difficulty regulating their responses during emotional conflict trails.

Youth who have experienced traumatic events, or have a history of trauma, show greater deficits in regulation at a neurological level, as seen in the study by Marusak et al. (2015). Marusak et al. (2015) stated that early intervention skill training is necessary to effectively address regulation deficits in youth while their brain in still developing. Youth in care in particular often come from very traumatic, stressful, and chaotic backgrounds. Youth currently living in care are at an increased risk for self-regulation difficulties due to past experiences, living environments, and emotional reactivity levels, and thus would be prime candidates for self-regulation training.

Youth in Care

Research has proven that stressful or traumatic events experienced early in life have a profound effect on the development and function of the stress response and regulation systems within the mind and body (Marusak et al., 2015; Shapero & Steinberg, 2013). For youth residing in a form of protected residential care, such as group homes or institutions, a history of trauma is unfortunately expected (Cimmarusti, 2011). Youth over the age of 13 are more likely to be placed in residential settings than any other type of care placement (i.e., foster care or adoption), and it is thought that up to 80% of all youth in care in the United States have serious mental health concerns, (Harpin, Kenyon, Kools, Bearinger, & Ireland, 2013). In many custody situations, it is unlikely that the type of environment and familial relationships conducive to developing self-regulation skills were present during early childhood.

According to Roca, Garcia, Biarnes, and Rodriguez (2009), residential care is one of the most common placements for unprotected youth. Unfortunately, exposure to stressful and traumatic events does not end when a child or youth is placed in care. Temporary placements, frequently changing and inconsistent staff, exposure to other high-risk youth, previous diagnoses, and lack of family involvement all contribute to emotional turmoil, which can further exacerbate challenges with emotional and self-regulation (Roca et al., 2009). Roca et al. (2009) analyzed the relationship between youth raised in care and their level of sociolaboral inclusion after leaving the care system. Successful sociolaboral inclusion was defined in the study as having employment that allowed for some autonomy and responsibility, and no concerns of alcoholism, drugs, or trouble with the law. Results showed that only 46.9% of the 143 participants interviewed met the study’s criteria for successful sociolaboral inclusion. Youth who entered the system due to family negligence had greater levels of emotional instability. Roca et al. also
found that youth who spent time at more than one care center experienced greater difficulties with drugs, employment, acceptance of social rules, and emotional regulation after leaving the care system than those who did not move around while in care. Over one third of the youth returned to living with their families after leaving the system and only 40.1% graduated from high school. However, youth who received some form of preparation training before leaving the care system scored higher on emotional regulation, interpersonal skills, and acceptance of rules. Roca et al.’s research highlights the strong need for training programs to teach and encourage self-regulation skills in youth.

Factors of emotional distress on youth in care were studied by Harpin, Kenyon, Kools, Bearinger, and Ireland (2013) using the results of the 2007 Minnesota Student Survey (MSS; Minnesota Department of Education, as cited in Harpin et al., 2013). The Minnesota Student Survey consisted of a total of 126 questions covering various risk and protective factors as well as demographic and health information. Harpin et al. assessed factors including parental caring, adult caring, school connectedness, grade point average, suicidality, and physical/sexual maltreatment. Results of the study showed that youth in care had fewer protective factors (e.g., parental caring, school connectedness) and greater risks (e.g., suicidality, mental health concerns) than youth living at home. Youth in care also reported higher rates of suicide attempts, and physical/sexual abuse indicators; one in five youth in care reported physical abuse by a family member. Decreased mental health distress among youth in care was strongly associated with parental caring, and feeling connected to one’s school. Frequent movement between care placements, foster families, and schools may interrupt the ability to connect to these protective factors. Overall, higher rates of mental health distress were seen in youth in care when compared to youth living at home. This research echoes that of Shapero and Steinberg (2013), Marusak et al. (2015), and Roca et al. (2009). Traumatic, stressful, and inconsistent living environments can significantly impact youths’ ability to develop and apply appropriate self-regulation skills.

No two youths in care will display behaviours in the same way. Individual histories, differing diagnoses, as well as varying levels of emotional reactivity and regulation skills will play significant roles in a youth’s progress through treatment (Cimmarusti, 2011). Despite individual differences in clients, Cimmarusti (2011) noticed a consistent pattern in the development of self-regulation skills in her clients at a female residential treatment facility. Cimmarusti categorized the overall progression of change seen in her clients into three phases. Phase one consisted of unlabelled and unregulated emotions. Clients typically expressed their emotions through behavioural means, and were unable to label how they felt at any given time. Clients in this phase were unaware and unable to verbally communicate any emotional labels. Phase two consisted of labelled but under-regulated emotions. Youth who progressed into and through this phase began to label the emotions they felt but were still unable to regulate or control them. Behavioural expressions were still frequent, but youth were sometimes able to indicate how they felt prior to behavioural expression. The third and final phase Cimmarusti described seeing in her client’s consisted of the ability to label emotions and the beginning of self-regulation skills. When in this phase, clients were able to label the emotion that they were struggling with presently and request help in using a coping tool or strategy before a behavioural expression or escalation occurred. They remained in control of their fear response, and could take the necessary actions to address and alleviate the trigger, with staff help if necessary, using socially acceptable means. Cimmarusti’s phases of change to self-regulation depict a progression in skill development and decrease in problematic behaviour that practitioners can look for as a guide to implementing their own self-regulation training programs.
Youth currently residing in some form of protected care are more at risk for self-regulation deficits, mental health concerns, and a variety of other social and economic struggles (Harpin et al. 2013; Roca et al. 2009). Self-regulation deficits compounded by the additional stressors of life in care can create significant challenges later on for unprotected youth (Roca et al. 2009). As with all skills, learning how to self-regulate can take time, patience, and a lot of support (Cimmarusti, 2011). It is important that there are effective training programs and tools available to help teach self-regulation skills in the most efficient and effective way possible.

**Emotion Regulation Training**

**The Zones of Regulation.** While academic and social skills training programs exist by the dozen, training programs specifically designed to teach self-regulation skills to youth are far scarcer. In 2011, Leah Kuypers published a classroom-based curriculum called The Zones of Regulation (the Zones) to help students develop self-regulation and emotional regulation skills. The Zones functions as both a curriculum and a framework for developing self-regulation skills (Kuypers, 2013). Youth are taught to categorize their emotions into four colour-based zones, and then learn how to apply appropriate coping strategies and tools at the necessary times (Kuypers, 2013). The colour-based zones correspond to levels of alertness (Kuypers, 2013). Blue corresponds to feelings such as sadness, depression, or boredom when one’s state of alertness is low. Green is for neutral states of alertness and corresponds to feelings such as happiness, contentment, and focus. Yellow is for agitated and increased states of alertness. Yellow emotions are emotions that may begin to trigger a reaction, such as anxiety, nervousness, silliness, or frustration. The red zone corresponds to intense emotions and can include behavioural explosions related to anger or fear (Kuypers, 2013). The coloured categorization assists youth in developing emotion recognition and verbal labels, as well as self-awareness, using easy to remember visual stimuli. The Zones also teaches eight different coping and problem solving strategies, such as breathing exercises, sensory coping tools, and worksheets for independent problem solving (Kuypers, 2013). The Zones is very hands-on and activity based, with lots of interactive modules to help youth integrate the concepts and language of the framework. Originally designed for classroom settings, no research currently exists on any modifications of the Zones program to other youth settings, such as residential care.

**Other Training Approaches.** Waters and Thompson (2014) state that self-regulation skills may buffer against risks of psychological concerns, and thus should be an important focus of treatment programs. To assess whether children understood the importance of using regulation skills, they examined the effectiveness of eight different coping strategies for anger and sadness as perceived by six- and nine-year-olds. Emotional regulation interviews were conducted with a total of 97 participants. The interviews consisted of four stories relayed to each child with each narrated in the second person and told using illustrations. Participants rated the effectiveness of the eight coping skills by sorting them based on a four-point rating scale of how helpful they would be for the current scenario. Results showed that both six- and nine-year-olds chose certain coping strategies over others depending on the specific emotion. Even young children were able to perceive the usefulness of engaging in specific coping behaviours to help deal with emotional situations. Waters and Thompson (2014) state that future research should continue to investigate the gap between youths’ ability to know and understand effective tools, and actually employ them in a pressing situation.

Some emotion regulation training programs have been developed in response to specific diagnoses. Schuppert et al. (2009) explored the effectiveness of Emotion Regulation Training...
(ERT) with youth diagnosed with borderline personality disorder (BPD). ERT is a 17-week program that combines psychoeducation, self-awareness skills, relationship skills, and self-management training (i.e., healthy eating, sleeping, and hygiene habits) with problem solving techniques. Forty-three youth participated in the study and were randomly assigned to receive either ERT plus treatment as usual (TAU) or only TAU. While both groups showed improvements in their BPD symptoms, the ERT plus TAU group reported improvement in their internal locus of control. They expressed feeling more in control of their mood swings and feelings after receiving ERT along with typical BPD treatment.

Waters and Thompson (2014) state that continued research needs to be done to assess why many children are aware of effective coping strategies and their benefits, but do not use them in the moment. It can be difficult for any person to use coping strategies in the middle of a heated situation. For youth with self-regulation difficulties, it may be more challenging to use those skills in the moment, even if they are aware of them. However, Schuppert et al. (2009) show that structured regulation programs can be implemented with youth with positive results. With these perspectives in mind, the concrete skills and structured interactive lessons of The Zones of Regulation by Kuypers (2011) may lend well to the skills-based reinforcement system of the Teaching Family Model.

The Teaching Family Model

The Teaching Family Model (TFM) was originally implemented in 1967 in group homes for delinquent youth (Fixsen, Blasé, Timbers & Wolf, 2007). It is a community-based family style treatment environment (De Wein & Miller, 2009) that facilitates humane, effective, individualized, satisfactory, cost efficient, replicable, and integrated treatment for youth (Fixsen et al., 2007, p. 98). The hallmark of the TFM is the Teaching Parents (TPs); a couple who live full-time within the home with the youth, providing a level of consistency and stability not often seen in other staff run group care settings (Fixsen et al., 2007).

The TFM is built on a process of giving/receiving instruction, behavioural rehearsal and positive practice, feedback, and reinforcement (Kingsley, 2006). In this manner, the model is able to individually focus on specific skill deficits for each youth. An intricate point-based token economy system allows youth to earn positive points for appropriate behaviour and acquisition of skills, while also losing points as a response cost measure for inappropriate or problematic behaviour. These points are then put towards earning privileges, and movement toward higher levels of freedom and responsibility within the model. The structured format of the point system along with the family style environment and relationship-based teaching interactions has made the TFM one of the most researched and generalizable models of residential care with various populations (Larzelere, Daly, Davis, Chmelka, & Handwerk, 2004).

De Wein and Miller (2009) used DRO, along with skills-based training, as part of the Teaching Family Model to decrease the aggressive behaviours of two adults with intellectual disabilities. The clients could earn reinforcement for not acting aggressively towards others. Skill training was also used to increase the clients’ vocabularies and help them achieve their personal goals. The clients’ physically aggressive behaviours decreased by 80% and 78%, while their verbally aggressive behaviours decreased by 90%, and 52% following program implementation.

The Teaching Family Model provides a highly structured learning environment while simultaneously supporting the need for relationships and caring within the youth. This treatment combination and the consistency afforded by having a structured model to follow and consistent...
full time staff has made the TFM one of the most adaptable and effective treatment models for reducing recidivism and teaching behaviours in youth (Larzelere et al., 2009).

**Summary**

Regulation skills, both self and emotional, are a complex set of abilities necessary for success in all areas of life including academia, work, relationships, and self-care (Schuppert et al. 2009). With the development of these skills beginning so early in childhood through caregiver interaction (Marusak et al. 2015), it is important that deficits noted in these skills are addressed as soon as possible. Chaotic living environments and high levels of household stress can negatively impact one’s emotional reactivity levels, causing increased reactivity to heightened situations and low tolerances for stress (Shapero & Steinberg, 2013). For youth living in protected care traumatic experiences and a history of chaotic living environments can significantly impact their ability to develop and apply healthy self-regulation skills (Shapero & Steinberg, 2013; Roca et al. 2009), as well as take a significant toll on their mental health and well being (Harpin et al. 2013). Early intervention for these skill deficits is necessary to replace the unhealthy emotional and self-regulation tools youth in care may have adopted.

Both The Zones of Regulation curriculum (Kuypers, 2011) and the Teaching Family Model provide structured learning environments and guided teaching interactions. Both models also provide room for targeting the individualized needs of youth and can be adapted and adjusted to fit current skill levels. Together, The Zones of Regulation incorporates regulation skills training into the home environment, while the TFM token economy system provides a way to reinforce all instances of appropriate regulation behaviour across all staff and teaching parents. Regulation skills can be taught and reinforced in the same manner as other TFM skills, and provides additional practice opportunities for youth within the home. Incorporating the Zones framework into a TFM environment should result in increases in self-regulation behaviours, and decreases in problematic behaviours, providing a safer and more stable environment for all residents.

**Word Count: 4397**
Chapter III: Method

Participant
One male youth, nine-years-of-age, was selected for the study. He had recently become a resident of a Teaching Family Model community-based group home. He also maintained regular visits with his biological mother and sister twice per week. The participant had a diagnosis of ADHD and took medication twice daily to help with concentration. He attended regular elementary school and was enrolled in mainstream classes for more than 85% of his course load. Along with his mother, the participant attended weekly therapy sessions provided by a professional child psychologist. The participant was physically and cognitively able to complete the Zones program’s activities and lessons appropriate to his age. The participant was referred for the study by the group home program manager based on his current level of need/risk and his overall treatment plan as determined by the agency. Individuals with severe psychotic disorders were not considered for the study.

Ethical Review and Consent Procedures
As the present study involved human participants, it was required that the study be submitted for review to the St. Lawrence College Research Ethics Board before commencing. Approval to begin the study was granted. The present study also served as a pilot project for the agency to assist in the future inclusion of The Zones of Regulation program within all their group homes. As such, additional staff members from the agency were involved in the design process.

Written documentation of informed consent was obtained from the participant’s biological mother/legal guardian. Assent was also obtained from the participant and his right to not participate at any point in the study was explained. The assent script used with the participant was included with the parent’s informed consent form. Appendix A contains a blank copy of the informed consent form presented.

Study Design/Format
A single case study design with additional pretest-posttest measures was used.

Independent variable.
The independent variable was defined as a modified version of The Zones of Regulation (Kuypers, 2011) program. The Zones program was condensed from a classroom-based curriculum containing 18 sequential lessons to an eight-lesson subset that could be easily completed in the group home environment. The lessons included in the modified version were chosen with the aid of the agency’s training manager and did not follow the same chronological order as the original program. The chosen lessons focused on the key elements of the Zones of Regulation program: emotion vocabulary and awareness, behavioural reactions of emotions, and coping strategies. Appendix B contains an outline of the lessons covered in the modified Zones program.

Dependent variables.
The dependent variables included self-regulation behaviours, the participant’s current TFM target skills, and problematic behaviours.
Self-regulation behaviours were defined and categorized into two types of strategies; calm down strategies and problem solving tools. Calm down strategies included breathing exercises (e.g., Six-Sided Breathing, Lazy-8 Breathing, or Calm-Down Sequence as taught in the modified Zones program; Appendix C), asking staff for a break, choosing a helpful activity (e.g.,...
listening to music, going for a walk), and expressing emotions or raising a concern by talking to staff. Problem solving tools included asking staff for help, and choosing a problem solving worksheet to complete with staff. Problem solving worksheets (Appendix D) included Acknowledging the Size of the Problem, and Inner Coach/Inner Critic as taught in the modified Zones program.

TFM target skills were defined as the participant’s current target behaviours within the group home. The participant’s target skills included following instructions and accepting “no” using a simple four-step process for each. When following an instruction, the participant was required to make eye contact with the staff member, say “ok”, complete the task, and report back to the staff member. When accepting a “no” answer, the participant was required to make eye contact, say “ok”, stay calm, and then raise a concern after if necessary.

Problematic behaviours were defined as shouting, swearing, arguing, being verbally aggressive towards others, threatening, refusing to comply with TFM target skills (e.g., refusing to follow instructions or accept “no”), physical aggression towards peers or staff including kicking, throwing items, and engaging in harmful or unsafe behaviours such as “AWOLing” (absent without leave), or self-harm.

**Setting and Materials**

All regular sessions took place in the home office space at the residential group home. Materials used included chairs, writing utensils, paper, construction paper in various colours, scissors, folders, and a device to play suggested videos. Teaching Family Model point cards (Appendix E) were used by group home staff to track the dependent variables. The student researcher used data collection sheets (Appendix F) to consolidate the participant’s point card data into a secure electronic file. Apparatus used included The Zones of Regulation manual and all the reproducible materials included with the Zones program.

**Measures and Data Analysis**

**Preference assessment.** A self-administered preference assessment questionnaire (Wright, 2004; Appendix H) was completed by the participant prior to beginning the modified Zones program. The preference assessment contained 20 items that pertained to various types of reinforcers that could be offered to the participant within the group home. The participant scored the items using a five-point Likert scale and identified reinforcers that were highly motivating for him.

**Difficulties in Emotion Regulation Scale (DERS).** The DERS (Gratz & Roemer, 2004; Appendix G) is a 36-item self-administered questionnaire that is completed using a five-point Likert scale. Higher scores, to a max of 180, indicate greater problems with emotion regulation. The DERS can also be broken into six subscales labelled as goals, non-acceptance, awareness, strategies, impulse, and clarity, that can be used to guide treatment goals and supports. The DERS was completed by the participant both prior to beginning the modified Zones program and immediately afterwards to assess any changes in their level of emotional regulation. The pre- and posttest scores were analyzed using descriptive statistics.

**Data collection.**

**Naturalistic Observation.** An ABC analysis of the participant was conducted for three days prior to beginning baseline. The analysis covered a variety of the participant’s interactions and reactions to situations within the group home. Appendix I contains the detailed ABC analyses.
Baseline and Intervention. Group home staff collected baseline and intervention data using event recording and the participant’s TFM point card. When the participant was seen to engage in any of the target behaviours as defined by the dependent variables, staff would use the appropriate teaching interaction style as required by the TFM. Positive and appropriate behaviours were responded to with effective praise and positive points; inappropriate behaviours required corrective teaching and a loss of points to the participant. The participant was responsible for recording these point gains or losses as per staff instructions on their point card. The student researcher then transferred the point card data to secure data collection sheets at the end of each evening. The data was analyzed using descriptive statistics and visual analysis.

**Intervention Procedures**

**Baseline.** Group home staff collected baseline data for two weeks prior to intervention. Data were collected between the hours of 7am and 9pm seven days a week when the participant was in the presence of group home staff. Behaviours that occurred during activities or outings that group home staff were not present for (e.g., after school activities, sports, overnight visits with family, etc.) were not recorded. Data were collected using the participant’s individual point card. The student researcher then collected, coded, and transferred the data onto a secured, electronic data recording sheet on a protected file each evening.

**Intervention.**

**The Zones of Regulation.** The modified Zones of Regulation program took place over a five-week period. Individual sessions occurred once a week after school, for up to one hour, in the group home’s office space. Sessions focused on exploring the participant’s emotional vocabulary and self-awareness, his behavioural reactions to emotions and the potential consequences, personal triggers, and helpful coping tools for managing his reactions. A variety of teaching methods were used during the Zones program including discussions, feedback, reinforcement, worksheets, and hands-on activities. Appendix J contains a detailed lesson plan of the topics and activities covered during each session.

The student researcher conducted all the sessions with the participant. Sessions typically took place immediately after the participant returned home from school. Sessions did not take place on the same day each week. Group home staff, using the existing point card system in the home, collected the data. Group home staff reinforced the participant with verbal praise and positive points on his point card whenever he was seen to engage in appropriate self-regulation skills. Use of appropriate self-regulation skills assisted the participant in earning into privileges as part of the current point card motivation system. Every two sessions the participant completed, he earned an extra privilege or reinforcer of his choosing. A large reinforcer of the participant’s choosing was also awarded upon completion of the final session.

**Safety Plan.** Risks included the potential for the participant to become upset, agitated, or aggressive towards his group home peers or staff. In the case of significant or escalating behaviours towards others, the agency’s safety protocols were followed immediately.

**Word Count: 1493**
Chapter IV: Results

It was hypothesized that incorporating self-regulation training, in the form of the modified Zones program, into the Teaching Family Model would increase the participant’s self-regulation behaviours, increase his current TFM target skills, and decrease his problematic behaviours. The results of this investigation are depicted through the following visual analysis and descriptive statistics.

Measures

Preference assessment. A self-administered preference assessment questionnaire was given to the participant prior to the Zones program commencing to determine the participant’s preferred reinforcers. Questions were rated using a five-point Likert scale from “Not Liked” to “Liked”. The participant rated tangible items and activities such as extra electronic time, edible treats, and one-on-one excursions with staff highly as “Liked”. Social reinforcers such as verbal praise, gestural praise, or positive notes home to the parent were rated lower as “Not Liked” to “Neutral”.

Difficulties in Emotion Regulation Scale (DERS). The participant scored 142 out of a possible 180 on the pretest DERS, indicating difficulties with emotional regulation. Posttest DERS yielded a score of 144, showing a two-point increase in difficulties with emotion regulation at the end of the Zones intervention. Figure 1 illustrates the participant’s total pre- and posttest scores. Of the six subscales within the DERS, the participant’s highest scores were seen in the “strategies” category at both pretest and posttest indicating greater difficulty with implementing regulation strategies. Scores for the subscales “non-accept”, “goals”, and “impulse” stayed the same from pretest to posttest. Slight decreases were seen in the participant’s scores from pretest to posttest for the subscales “aware” and “strategies”, while a slight increase was seen from pretest to posttest for the “clarity” subscale. Figure 2 illustrates the participant’s scores from pretest to posttest for all six subscales. Figure 3 displays the participant’s ratings from pretest and posttest for each question of the DERS.

![Figure 1. Participant’s total scores from pretest and posttest DERS.](image-url)
**Data Collection.**

*Naturalistic Observation.* An ABC analysis was completed for three days prior to beginning baseline data collection. The analysis showed that common antecedents for problematic behavior involved the participant being told no or not getting his way. Behaviours often included arguing, yelling, and refusal to follow instructions. During one particular observation session, the participant also displayed aggression towards staff and “AWOLing” behaviour. Consequences involved ignoring the participant and giving him time to calm down and/or engaging in intensive teaching and delivering negative points for inappropriate behaviours. Prompts and praise statements were also used frequently when appropriate. Refer to Appendix I for ABC analysis charts.

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**Figure 2.** Participant’s total scores per subscale from pretest and posttest DERS.

**Figure 3.** Participant’s scores per question from pretest and posttest DERS assessment.
Baseline, Intervention, and Follow-up. Three dependent variables, or target behaviours, were tracked during the study to determine if the incorporation of a modified Zones of Regulation program into the Teaching Family Model would have a positive effect on increasing a variety of self-regulation and compliance skills, as well as decrease problematic behaviours displayed by the participant. Target behaviours included self-regulation behaviours, current TFM target skills, and problematic behaviours. Baseline data were collected for two weeks from October 12, 2015 to October 27, 2015. Implementation of the modified Zones program began on October 28, 2015 and continued until November 26, 2015. Data continued to be collected for 14 days post intervention. Follow-up lasted from November 27, 2015 to December 10, 2015. Appendix K, L, and M contain all raw data collected for baseline, intervention, and follow-up phases respectively. Appendix N contains all mathematical calculations completed to determine stability for all three dependent variables. Appendix O contains all mathematical calculations required to determine Percentage of Data Points Exceeding the Median (PEM) for each dependent variable, while Appendix P contains all mathematical calculations required to determine the Percentage of Non-Overlapping Data (PND) for each dependent variable. Finally, Appendix Q contains detailed graphs of all three dependent variables with trend lines.

Self-regulation Behaviours. Self-regulation behaviours included the participant’s use of calm down strategies and problem solving tools. These behaviours included skills taught by the Teaching Family Model as well as skills taught using the modified Zones program. Figure 4 displays the changes seen in the participant’s self-regulation behaviours from baseline to follow-up. While baseline displays an increasing trend, intervention displays a decreasing trend and follow-up shows a very slight increasing trend again. During baseline, the participant engaged in self-regulation behaviours an average of 0.50 times a day. During intervention, self-regulation behaviours occurred an average of 0.41 times a day, and during follow-up they occurred an average 0.07 times a day.

The Percentage of Non-Overlapping Data (PND) was calculated for the participant’s self-regulation behaviours using Scruggs, Mastropieri, and Casto’s (1987) method. PND for self-regulation behaviours were 0%. According to Scruggs and Mastropieri’s (1998) criteria, this indicates the treatment was not effective in accelerating the participant’s self-regulation behaviours.

The Percentage of Data Points Exceeding the Median (PEM) were also calculated for self-regulation behaviours using Ma’s (2006) proposed calculation. PEM was calculated to be at 19.51%, indicating that the intervention was not successful in increasing the participant’s self-regulation behaviours.

According to Gast and Ledford’s (2014) definition of stability, which requires 80% to 90% of the data points to be within 25% of the median value, baseline data for self-regulation behaviours were calculated as not stable, as only 71.43% of the data points fell within 25% of the median. Data during the intervention phase was also determined to not be stable as only 74.07% of the data points fell within the appropriate range of the median. Data collected during follow-up however was determined to be stable as 92.86% of the data points recorded fell within 25% of the median value.
TFM Target Skills. The participant’s current TFM target skills at the time of the study included following instructions and accepting “no”. Figure 5 displays the participant’s progress. A decreasing trend can be seen for all three phases of the study. Based on the data collected, during baseline the participant engaged in his TFM target skills an average of 5.36 times per day. During intervention, the participant engaged in his TFM target skills an average of 4.11 times a day and during follow-up TFM target skills were displayed an average of 3.57 times a day.

PND (Scruggs, Mastropieri, & Casto, 1987) was calculated at 0%, indicating that the intervention was not successful in increasing the participant’s TFM target skills (Scruggs & Mastropieri’s, 1998).

PEM (Ma, 2006) was calculated at 14.63%, as only a small portion of intervention and follow-up data points exceeded the baseline median. PEM calculations indicated that the intervention was not successful in increasing the participant’s TFM target skills.

Stability (Gast & Ledford, 2014) was calculated for baseline, intervention and follow-up phases. It was determined that data in all three phases were not stable, as the majority of the data points in each phase fell outside the required range. Calculations resulted in 14.29% stability, 18.52% stability, and 42.86% stability for each phase respectively.
Problematic Behaviours. Problematic behaviours were defined as shouting, swearing, arguing, being verbally aggressive towards others, threatening, refusing to comply with TFM target skills (e.g., refusing to follow instructions or accept “no”), physical aggression towards peers or staff including kicking, throwing items, and engaging in harmful or unsafe behaviours such as “AWOLing” or self-harm. Figure 6 displays the participant’s progress throughout the study. During baseline, the participant engaged in problematic behaviour an average of 1.64 times a day. During intervention, he averaged 1.04 occurrences of problematic behaviour a day, and during follow-up he averaged 0.71 occurrences a day. A decreasing trend in the participant’s problematic behaviours can be seen for all three phases of the study.

PND (Scruggs, Mastropieri, & Casto, 1987) was calculated at 97.56%, indicating that the intervention was successful in decreasing the participant’s problematic behaviours according to Scruggs and Mastropieri’s (1998) criteria.

PEM (Ma, 2006) was calculated at 48.78%, as almost half the data points during intervention and follow-up fell below the baseline median. PEM calculations also indicate that the intervention was successful in decreasing the participant’s problematic behaviours.

Stability (Gast & Ledford, 2014) was calculated for the baseline, intervention and follow-up phases of the participant’s problematic behaviours. It was determined that data in all three phases were not stable, as the majority of the data points in each phase fell outside the required range.
Figure 6. Frequency of the participant’s problematic behaviours from baseline to follow-up.

Word Count: 1417
Chapter V: Discussion

Summary of Research Findings

This thesis project aimed to investigate the modification of a classroom-based self-regulation skills training program for one-on-one use with children in a residential treatment home. Current research indicates that individuals who have experienced traumatic events, or chaotic living environments are more likely to experience and display deficits in self-regulation skills and emotional reactivity (Marusak et al., 2015; Shapero & Steinberg, 2013). Youth in care are also at a greater risk for mental health concerns (Harpin et al., 2013) and inconsistent environments experienced in the care system may exacerbate emotional turmoil and deficits in self-regulation into their adult life as well (Roca et al., 2009).

One male participant was referred for the study by the agency based on his current level of need/risk and treatment goals. Naturalistic observation of the participant’s events within the group home was completed over three days. Baseline data were collected for two weeks on the participant’s self-regulation behaviours, current Teaching Family Model target skills, and his problematic behaviours. A pre- and posttest assessment was completed with the participant using the Difficulties in Emotion Regulation Scale (DERS; Gratz & Roemer, 2004). Intervention consisted of five weekly sessions held with the client to teach emotion awareness and self-regulation behaviours using a modified and condensed version of The Zones of Regulation (Kuypers, 2011) program. Data were collected using event recording and was tracked via the participant’s TFM point card before being transferred to data collection sheets. Follow-up continued for 14 days after the final session was completed.

The participant’s scores on the DERS from pretest to posttest did not show an improvement in emotion regulation skills within the five-week span. Posttest scores actually increased by two points, indicating the client experienced greater difficulty with emotion regulation at the end of intervention than prior to beginning the modified Zones sessions. The client’s scores for the six sub-scales of the DERS stayed the same from pretest to posttest with the exception of the “clarity” sub-scale. The participant’s scores for the “clarity” sub-scale increased at posttest, indicating greater difficulties with clarity around emotions, emotion awareness, and self-regulation skills. Taking into consideration the short time-frame within which the modified Zones sessions were administered and the age of the participant (just nine-years-old), this increase in lack of clarity may not be unexpected. The Zones of Regulation program focuses on teaching youth how to interpret emotions while also reducing the stigma around types of emotions. This increased deficit in clarity around emotions and self-regulation could potentially indicate the beginnings of a change process for the participant in his beliefs and thoughts about his own emotions. Scores on some individual questions did show decreases at posttest, such as question number three “I experience my emotions as overwhelming and out of control”, which the participant rated as a five, “Almost Always”, at pretest and a one, “Almost Never”, at posttest.

These minute changes indicated to the student researcher that the client may have begun to think about his emotions and subsequent behaviours differently. For youth who may have experienced traumatic events, change, both in their physical environment and personally, can be difficult. Extinction bursts and variability in an individual’s responses or actions may not be surprising when they are beginning to incorporate new and unfamiliar ways of thinking into their lives. Although the results of the DERS assessment were in contrast to what was hypothesized (self-regulation skills would increase and the posttest DERS score would respectively decrease),
they are also in contrast with the decrease in problem behaviours and the positive progress the client made through the TFM motivation levels. An increase in the client’s difficulties with emotion regulation did not correspond with an increase in problematic behaviour. It may be that the modified Zones program assisted the client becoming more aware of his emotional difficulties.

It was hypothesized that modifying and incorporating the Zones program into the TFM would result in an increase in the participant’s self-regulation behaviours, an increase in their TFM target skills, and a decrease in problematic behaviours. Looking at the data, it appears that the first two objectives were not met. Both self-regulation behaviours and TFM target skills have decreasing trends through intervention and follow-up that match a decreasing daily average of occurrences. However, this data may not be representative of the participant’s true behaviour. Throughout the project, the participant graduated twice into higher levels of the TFM motivation system. The TFM system is designed so that, with each higher level of the motivation system, the youth receive less reinforcement in the form of points and teaching interactions for positive behaviours that they have mastered. In this way, the system is faded to reflect a more natural system of consequences. This means that the number of occurrences recorded on the participant’s point card were not reflective of the actual number of behaviours that may have occurred throughout the day. Once the participant reached the second and third tiers of the motivation system, only a portion of the occurrences of those positive behaviours would have been recorded. Taking into account the participant’s fast graduation through the system and fewer recordings of TFM target skills a decreasing trend in the data is actually a positive finding.

In addition to the inaccurate data collection as the participant graduated levels in the TFM system, the participant may also have been demonstrating greater internal emotional control, which would not require him to use any overt self-regulation skills or be recordable by staff. Problematic behaviours were continuously recorded throughout the project on a consistent basis. Each time the participant engaged in problem behaviours, it was recorded by staff, thus these data are accurate in depicting the participant’s decreasing frequency of problematic behaviours. The decrease in the participant’s problem behaviours may indicate that the client was settling into life in the group home, and that he had adjusted to the structured TFM system. As he habituated to his new environment and became familiar with the expectations, he may have increased his use of self-regulation strategies and emotional control. If the participant was able to use these skills in a covert manner, such as not engaging with other peers during an argument and counting to 10 in his head, it would not have been possible for staff to accurately see or record his use of the skills. Again these positive behaviours may not have been accurately recorded due to his fast graduation through the motivation levels. As he increased his use of self-regulation skills, there may have been less need for him to use them overtly as he was able to maintain a calmer state more often. A decrease in problem behaviours may coincide with a positive increase in the number of self-regulation behaviours seen, although not recorded.

**Strengths**

This project had a number of strengths and positive results that were seen. The Zones of Regulation program was an effective curriculum to explore and investigate within the group home setting. The program was easy to modify to fit the needs of the participant and group home environment. There were numerous activities to choose from and all the activities came with suggestions for additional modifications or variations if needed. Materials required were minimal and the program sessions could be completed anywhere the participant was comfortable. Overall,
the Zones program proved to be adaptable for a different environment and setting than it was originally designed for.

Throughout the intervention phase and follow-up phase, despite not being depicted graphically, important positive changes were seen in the participant. As explained above, the participant excelled within the structure of the Teaching Family Model and graduated up more than one level of the motivation system during the course of the project. Conducting the Zones sessions with the participant provided an opportunity to cultivate a better rapport and a deeper relationship with the participant. As the sessions went on, the participant began to open up more to the student researcher and provide additional information about his past experiences and current feelings. The student researcher observed that the client was very insightful about how his problem behaviours affected the feelings and reactions of those around him during an exercise that encouraged empathy and consideration of others. During this activity, he was able to clearly depict in a variety of scenarios how his behaviour often made his mother and sister feel and respond to him, and how those responses in turn made him feel. He was also able to articulate to the student researcher that if he experienced that type of behaviour from someone, he would likely respond the same way his family did. This was a great step forward in exploring how one’s behaviour can incur unpleasant consequences from others and effect their perception of us. During another session in which the participant was exploring and identifying triggers, he opened up a great deal with the student researcher about some of the hurtful and judgmental things that had been said to him by peers and adults in the past regarding his diagnosis or family situation. This moment signified to the student researcher that the client was becoming more comfortable talking about his feelings and experiences. It also showed the student researcher that a good rapport was developing between them as he had not discussed the trauma he suffered as a child with anyone else in the home.

Outside of sessions, the participant began to come to the student researcher more regularly with concerns or to ask for help. These situations often resulted in the participant and the student researcher verbally problem solving and brainstorming solutions, while focusing on empathy, validation, and awareness of others in the discussion. The client was open and responsive to problem solving with the student researcher. Through general discussions with other group home staff, it was suspected that the client was coming to the student researcher more frequently than other staff members and this may have been due to the rapport and trust that was being built during the modified Zones sessions.

The student researcher also observed during the course of the project that the participant began to engage in more age appropriate emotional responses when he was upset. Instead of becoming very angry, aggressive, and potentially destructive as was seen in the beginning, the participant was able to display his emotions in front of staff, calm down quickly, and work through the situation or the consequence. During one specific example of this positive improvement, the client became upset and refused to comply with an instruction given to him. Instead of engaging in previous types of behaviour though, he stayed in the room sitting at the kitchen table. He openly cried in front of the staff, he calmly and appropriately asked to be left alone for a few minutes to calm down, and when he had calmed down he accepted his consequence quickly and moved on. It is often very difficult for the youth in the home to stay calm when they are upset, and even harder for them to be polite and ask for space appropriately. This incident demonstrated an increase in the participant’s emotional control when he was triggered and upset.
The modified Zones sessions provided a consistent and reliable outlet for the participant and a safe environment to talk about any deeper issues or concerns with the staff. These opportunities for safe personal connection may have positively contributed to the participant’s improvements with his target skills and interactions with others in the house. They may also have positively contributed to his ability to adapt to the structure and expectations of the Teaching Family Model.

Limitations

Initial limitations to this project included the single-case study design and the inability to implement any reversal phases within the project. Limitations also included the inability to determine the relative contributions of the Zones-based intervention or the natural structure and consistency of the TFM to the changes in the participant’s behaviour.

The client’s rapid success within the TFM motivation system caused a discrepancy in the data collection that was not planned for, and limited the accuracy of the data collected during later phases of the project. Graduation through the TFM motivation levels typically takes youth who are entering the group home for the first time much longer. As a result, the student researcher did not account for how an increase in the client’s motivation level would affect data collection or the accuracy of the results of the study.

Staff consistency was a large barrier to this project. While all staff receive the same TFM training, variances and discrepancies in the way staff members give and take points can easily arise. This can result in some staff ignoring behaviours that other staff might teach to and created discrepancies within the data collected. During the time period when this project was taking place a number of new staff were introduced to the home and a lot of training was taking place. It can take quite a while to become comfortable in using the TFM system and recognize behaviours that can be labelled and taught to. Newer staff tended to focus on more basic TFM skills and did not always engage the youth in the slightly more complex skills related to the project (i.e., raising a concern, expressing emotions, asking for help, etc.). As well, at the time of this project the group home was functioning on a staff-run model, as it currently did not have a set of Teaching Parents living within the home. This may also have contributed to a lower level of consistency than is typically experienced in a TFM home, simply because the staff are working on a shift-work basis and not all staff may not be as familiar with the youth in the house.

The weekly sessions completed with the client were not conducted on a consistent schedule. They often had to be organized around the client’s upcoming activities, appointments, and family visits for that week which could change frequently. Session dates were often decided upon with the client a day or two before conducting the session. Conducting the sessions in the home environment allowed for this last minute flexibility, but the inconsistent scheduling made it difficult for the client to develop a routine regarding the modified Zones program. Some sessions were close together and the client got a lot of information in just a few days, and other sessions were 10 days apart. This also made it difficult for other staff members to keep up with what material was being covered with the client.

The modified Zones program was reduced from an 18 lesson curriculum to an eight-lesson subset covered over five weeks. Some sessions were material heavy and client received a lot of information at a rapid pace. The short time frame to complete this project may have limited the client’s ability to grasp all the concepts fully and practice them appropriately.

Overall, it was discovered that while the Zones of Regulation material is very adaptable, many other factors in the setting it is being applied to must be taken into consideration. During
IMPROVING SELF-REGULATION OF YOUTH IN CARE

this project unexpected changes in the participant’s TFM motivation level, as well as frequently changing staff, and inconsistent scheduling of session effected the results of the study. Continued adaptations and careful inclusion of the Zones program may still make it valuable as a versatile self-regulation skills training program.

Multilevel Challenges to Service Implementation

Client Level. While the Teaching Family Model provides a consistent framework for how to teach to all youth in the program, each youth has a unique set of diagnoses, behavioural issues, and relationship needs. It can be difficult and overwhelming at times as a staff member to build rapport with six very different youth at the same time. Details such as voice tone, phrasing, and body language can have significantly different results with different clients. Equally important for staff is the ability to switch very quickly between approach styles when dealing with multiple youth at the same time. Understanding the clients’ differences, strengths, and current limitations are essential to creating an environment that promotes security, safety, and autonomy, as well as successful behavioural change.

Program Level. Teaching Family Model group homes strive to create an environment that feels as much like a normal family home as possible. Unfortunately, for youth in care there are many facets of living in a group home that can continuously make them feel out of place compared to their peers. In this particular TFM, home there were no full-time Teaching Parents (TPs) currently residing in the home. This created a distinct discrepancy in the environment compared to what the model strives to create. A TFM home with no TPs is forced to function on a staff-run model with staff working a rotating shift-work schedule. This contributes to the lack of family connection and general inconsistency felt by the youth, despite the staff’s best efforts to develop and model that environment.

For some of the older youth, the point card motivation system used by the TFM was often a topic of disagreement. The youth expressed that they felt like their life and freedom consisted of a piece of paper. It can be difficult to motivate youth to engage in the skills and behaviours they need to be showing if they are not personally motivated by attaining points, doing well, and earning the basic privileges provided. Sometimes appropriate adaptations are needed to individualize the program more effectively for the youth. This comes with its own challenges though, as other youth in the home may feel this is unfair.

Organization Level. It can be difficult at times to recreate a “family environment” when each youth in the group home has an army of people involved in their well being. Youth do not always understand that even some decisions are out of the control of group home staff. Between program managers, caseworkers, therapists, school personnel, advocacy workers, and varying levels of parental or family involvement, it can be a real struggle for group home coordinators and staff to plan family style activities around six very different schedules and requirements.

Societal Level. Despite the best efforts of the organization, the actions of the youth are not always well received by surrounding neighbours and community members. Frequent visits by law enforcement, additional noise, and occasionally property damage caused by the youth can encourage a negative image of the group home and its residents. Without truly understanding the struggles these youth face day to day, it is easy for community members to ostracize or look down upon these children and judge them unfairly. This, in turn, can encourage the youth’s own negative views of others. It can be challenging for staff to encourage and support a perspective of understanding among the youth, when they do not have a history of experiencing that from others in society.
Contributions to the Behavioural Psychology Field

This project contributed to the field of behavioural psychology in a number of ways. Currently, there is limited research on the Zones of Regulation program (Kuypers, 2011) and no research was found on its application to settings outside of academic environments. This project exposed the Zones of Regulation to a new environment and population, while exploring its adaptability and ease of use. This project also explored the adaptability of the Teaching Family Model in accepting additive programs to treat self-regulation deficits in a more comprehensive manner.

Recommendations for Future Research

Most importantly, more research is required on self-regulation training programs for youth. Continued research using the Zones of Regulation program (Kuypers, 2011) will assist in developing its efficacy and functionality with additional populations and within different environments. With regards to modified versions of the program, future studies may want to consider lengthening the number of sessions required and providing comprehensive reviews of the material so that the youth integrate the skills and lessons fully. Consistent spacing of sessions and in-depth staff training may also assist in gathering future research.

Word Count: 3318
References


Appendix A
Informed Consent Form With Assent Script

**Project title:** Improving Self-Regulation of Youth Residing in Residential Care.
**Principal Investigator (Student):** Bryn Thompson
**Supervisor:** Andrew McNamara
**Institution:** St. Lawrence College
**Name of Institution/Agency:** Youth Development and Integration

**Invitation**
Your child is being invited to take part in a research study. I am a student in my 4th year of the Behavioural Psychology degree program at St. Lawrence College in Kingston, Ontario. I am currently on a field placement at Youth Development and Integration in Calgary, AB. As a part of this placement, I am completing a research project (called an applied thesis). I would like to ask you for your child’s help to complete this project. The information in this form will help you understand my project. Please read the information carefully and ask all the questions you might have before you decide if you want your child to take part.

**Why is this study being done?**
This project uses a program called The Zones of Regulation (the Zones) to teach youth skills for emotional regulation. The Zones program is designed to teach youth how to become more aware of, and regulate, their emotions in different settings or situations. I would like to implement the Zones program with two youth currently in care with Youth Development and Integration. If this program is effective in teaching helpful emotional regulation skills, it may be included in future Youth Development and Integration services that are offered.

**What will your child need to do if s/he takes part?**
If you choose to allow your child to take part in this study they will be asked to fill out a questionnaire that asks about their current level of emotional control. They will also be asked to meet with me one-on-one for one hour, once a week after school. The Zones of Regulation program will be followed, with some adaptations designed to improve its use in a residential setting. The lessons from the program will cover different types of emotions, what types of emotions are appropriate for different situations, and tools to help your child learn to manage their emotions on their own. The sessions will take place for five weeks at the Youth Development and Integration residence and will be taught by myself. Youth Development and Integration staff will record the number of times your child demonstrates the skills learned from the Zones program outside of the sessions. At the end of the five weeks, your child will fill out another emotional regulation questionnaire. This data will allow me to see the progress your child is making and determine if the program is effective.

**What are the potential benefits to your child if they take part?**
Benefits of taking part in this research study may include your child learning more about themself. Your child may improve their social skills, their self-regulation and
emotional control skills, and their communication skills with others.

**What are the potential benefits of this research study to others?**

The potential benefits of this research study to others may include improving the Zones program, and incorporating it into the services offered at Youth Development and Integration for more individuals to benefit from.

**What are the potential disadvantages or risks to my child if they take part?**

The risks of participating in this research study are mild but may include your child feeling sad, angry or upset. Your child may find it uncomfortable to talk about emotions, or learn how to manage their emotions in a different way. Risks may also include participants becoming aggressive towards each other or staff. In the case of aggression towards others, the agency’s safety protocols will be followed immediately.

**What happens if something goes wrong?**

Every individual is different. If your child has any concerns throughout the program, they may speak with myself or another Youth Development and Integration staff member, and we will arrange additional support.

**Will the information you collect from my child in this project be kept private?**

We will make every attempt to keep any information that identifies your child strictly confidential unless required by law. No names or identifiers will be used. Your child will be assigned a code number to use during data collection and transfer. The consent forms, my project notes, data collection sheets, and completed surveys will be kept in a locked filing cabinet at Youth Development and Integration’s main office until the end of the project, after which they will be destroyed. The computer files with the study data will be kept in a password-protected file on a secure, password-protected computer for the duration of the project, and will be destroyed once the project is complete. All study data and results will be kept in a locked filing cabinet at the agency’s main office for 7 years, after which it will be destroyed. Your child’s name or other identifiers will not be used in any reports, publications, or presentations resulting from this project.

**Does my child have to take part?**

Taking part is voluntary. It is up to you to decide whether or not to allow your child to take part. I will also ask your child if they want to take part. If you decide to allow your child take part, you will be asked to sign this consent form. If you do decide to allow your child to take part in this project, you and/or your child are still free to stop at any time, without giving any reason, and without experiencing any penalty, or negative effects. If your child stops taking part, please have your child tell a Youth Development and Integration staff member, or myself.

**Contact for further information**

This project has been reviewed by the Research Ethics Board at St. Lawrence College. Andrew McNamara, Ph.D., BCBA, my supervisor from St. Lawrence College, helped me develop this project. I appreciate your help and the help from your child. If
you have any additional questions, feel free to ask me, Bryn Thompson (bthompson59@student.sl.on.ca). You can also contact my College Supervisor, Andrew McNamara, (amcnamara@sl.on.ca) or you may contact the St. Lawrence College Research Ethics Board at reb@sl.on.ca.

Consent
If you agree to allow your child to take part in this research project, please complete the following form and return it to me as soon as possible. A copy of this signed document will be given to you for your own records. We will keep an additional copy of your consent at Youth Development and Integration.

By signing this form, I agree that:

- The study has been explained to me.
- All my questions were answered.
- Possible harm and discomforts and possible benefits to my child of this study have been explained to me.
- I understand that my child has the right not to participate and the right to stop at any time.
- I am free now, and in the future, to ask any questions I have about the study.
- I have been told that my child’s personal information will be kept confidential.
- I understand that no information that would identify my child will be released or printed without asking me first.
- I understand that I will receive a signed copy of this consent form.

I hereby consent for my child, __________________ to take part.

---

Parent/Guardian Name ___________________________ Signature of Parent/Guardian ___________________________ Date ________________

Student Printed Name ___________________________ Signature of Student ___________________________ Date ________________

---

Child Assent Script
Below is the script I will read to your child when asking for their assent to participate in this project. Even if you give consent for your child to participate, if your child says no, they will not participate in this project in any way.
Assent Script

Hi. My name is Bryn and I am a student from St. Lawrence College in Ontario. I am doing a research project and I would like your help. If you take part in my project, we will talk about emotions and how to manage and control them in different situations. I will ask you to complete a short survey. After that, we will meet once a week after school to learn tools to deal with our emotions. We will do this for five weeks. At the end of the five weeks, I will ask you to fill out another survey. I hope that this program provides you with helpful skills for dealing with frustrating situations. You may feel uncomfortable from time to time talking about different types of emotions. If you ever have any problems and need to talk about your concerns, you can talk to me, or a Youth Development and Integration staff member. You are free to take part, or not, and may stop at any time. You may also ask questions at any time during the project. Your name, or any other identifying information, will never be used in the project or reports. If you would like to stop at any time, just let me, or another staff member know. Do you have any questions? Would you like to participate?
## Appendix B
Modified Zones of Regulation Lesson Plan

<table>
<thead>
<tr>
<th>Session</th>
<th>Zones of Regulation Lesson</th>
<th>Activity</th>
<th>Supplies</th>
<th>Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>12 - Exploring Tools: Thinking Strategies</td>
<td>9 – Caution Triggers Ahead</td>
<td>Printable Worksheet</td>
<td>30 minutes</td>
</tr>
<tr>
<td></td>
<td>11 – My Zones Across the Day</td>
<td>5 – Understanding Different Perspectives</td>
<td>Printable Worksheet</td>
<td>30 minutes</td>
</tr>
<tr>
<td></td>
<td>8 – Zone in Video</td>
<td>3 – Tool Box Poster</td>
<td>Printable Worksheet</td>
<td>30 minutes</td>
</tr>
<tr>
<td></td>
<td>7 – Zone in Video</td>
<td>13 – Tool Box Poster</td>
<td>Printable Worksheet</td>
<td>30 minutes</td>
</tr>
<tr>
<td></td>
<td>6 – Watch video to identify the different tool box poster for visual reminder of zones the characters are in. (Use participant's favourite tv show)</td>
<td>Tools &amp; Tools: Visual aids: Various types of tools</td>
<td>Video/Netflix, Coloured squares of paper</td>
<td>30 minutes</td>
</tr>
<tr>
<td></td>
<td>5 – Take box for visual reminder of correct zone.</td>
<td>Construction paper, Poster &amp; Tape</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>4 – Wall posters</td>
<td>Tools &amp; Tools: Visual aids: Various types of tools</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>3 – Tool Box Poster</td>
<td>Tools &amp; Tools: Visual aids: Various types of tools</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

---

**Notes:**
- Session 1: Wall posters
- Time: 40 minutes
Appendix C
Calm Down Tools

The Six Sides of Breathing

Starting at the yellow star trace with your finger the sides of the hexagon as you take a deep breath in, feeling your shoulders rise as the air fills you. Trace over the next side as you hold your breath for a moment. Slowly breathe out as you trace the third side of the hexagon. Continue tracing around the bottom three sides of the hexagon as you complete another deep breath. Continue The Six Sides of Breathing cycle until you feel calm and relaxed.

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Lazy 8 Breathing

Trace the Lazy 8 with your finger starting at the star and taking a deep breath in.

As you cross over to the other side of the Lazy 8, slowly let your breath out.

Continue breathing around the Lazy 8 until you have a calm body and mind.
My **Calming** Sequence Visual

**Activity:** Try this calming sequence. Does it feel good and calming? How can you change it so that it works for you?

This calming sequence goes like this: Squeeze your hands together; close your eyes and rub your head; then rub your legs. Repeat the sequence five times, bringing your stress down.

---


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## Size of the Problem Worksheet

### Big vs. Little Problems

<table>
<thead>
<tr>
<th>People see these as</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Big Problems</td>
<td></td>
</tr>
<tr>
<td></td>
<td>4</td>
</tr>
<tr>
<td>Medium Problems</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>2</td>
</tr>
<tr>
<td>Little Problems</td>
<td>1</td>
</tr>
</tbody>
</table>

Adapted for *The Zones of Regulation* from the original work of Winner’s Think Social (2005), pages 44-46, www.socialthinking.com and Buron and Curtis’ *The Incredible 5-Point Scale* (2003), www.5pointscale.com.

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Size of the Problem

Remember the size of your reaction has to match the size of the problem!

How big do others see the problem?
How big should your reaction be?

Tiny Problem

2

3

4

5

Huge Problem

Large Problem

Medium Problem

Little Problem

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Visual adapted by Leah Kuyper, Donna Brittain and Jill Kuzma for The Zones of Regulation® from the original work of Winner's Think Social! (2005), pages 44-45, www.socialthinking.com, and Buron and Curtis' The Incredible 5-Point Scale (2003), www.fpointscale.com
Inner Coach

Inner coaches help us use positive self-talk to give us the courage and strength to get through stressful situations.

Difficult times I may need my inner coach are:

________________________________________________________________________
________________________________________________________________________
________________________________________________________________________

My inner coach reminds me to use strategies to keep myself calm.

To help me get to the Green Zone, my inner coach reminds me to:

________________________________________________________________________
________________________________________________________________________
________________________________________________________________________

My inner coach also helps to keep positive thoughts in my head so I can be successful.

My inner coach might say to me:

________________________________________________________________________
________________________________________________________________________
________________________________________________________________________

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From The Zones of Regulation® by Leah M. Kuyper • Available at www.socialthinking.com
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Inner Critic

Inner critics use negative self-talk that get us nowhere. It puts defeating thoughts in my head.

Times my inner critic gets to me:

_________________________________________________________________

_________________________________________________________________

_________________________________________________________________


My inner critic does not help and instead ends up making a situation worse.

My inner critic might say to me:

_________________________________________________________________

_________________________________________________________________

_________________________________________________________________


I am in control of who I listen to—the inner coach or inner critic.

I can use my inner coach to defeat my inner critic by telling it:

_________________________________________________________________

_________________________________________________________________

_________________________________________________________________
### Appendix E
Teaching Family Model Point Card

#### POINT CARD

<table>
<thead>
<tr>
<th>Code</th>
<th>Pos. Points</th>
<th>Curriculum Skill</th>
<th>Specific Behavior</th>
<th>Neg. Points</th>
<th>T-P</th>
</tr>
</thead>
<tbody>
<tr>
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</table>

TOTAL MADE | TOTAL LOST

Privileges: Q All  
Available: Q None  
Today: Q The Following:

Name: ___________________  DATE: _______________
Appendix F
Event Recording Data Collection Sheet

Name: ____________________  Date(s): ____________________
Observer: __________________  Setting: __________________
Time Started: ________________  Time Ended: ________________
Target Behaviour: ________________

<table>
<thead>
<tr>
<th>Date / Time Interval</th>
<th>Occurrences</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
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</tbody>
</table>
# Appendix G
Difficulties in Emotion Regulation Scale

<table>
<thead>
<tr>
<th></th>
<th>Identifier</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>I am clear about my feelings (R)</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>I pay attention to how I feel (R)</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>I experience my emotions as overwhelming and out of control</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>I have no idea how I am feeling</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>I have difficulty making sense out of my feelings</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>I am attentive to my feelings (R)</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>I know exactly how I am feeling (R)</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>I care about what I am feeling (R)</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>I am confused about how I feel</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>When I’m upset, I acknowledge my emotions (R)</td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>When I’m upset, I become angry with myself for feeling that way</td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>When I’m upset, I become embarrassed for feeling that way</td>
<td></td>
</tr>
</tbody>
</table>

Please indicate how often the following 36 statements apply to you by writing the appropriate number from the scale above (1 – 5) in the box alongside each item.
### Improving Self-Regulation of Youth in Care

<table>
<thead>
<tr>
<th></th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>13</td>
<td>When I’m upset, I have difficulty getting work done</td>
</tr>
<tr>
<td>14</td>
<td>When I’m upset, I become out of control</td>
</tr>
<tr>
<td>15</td>
<td>When I’m upset, I believe that I will remain that way for a longtime</td>
</tr>
<tr>
<td>16</td>
<td>When I’m upset, I believe that I’ll end up feeling very depressed</td>
</tr>
<tr>
<td>17</td>
<td>When I’m upset, I believe that my feelings are valid and important (R)</td>
</tr>
<tr>
<td>18</td>
<td>When I’m upset, I have difficulty focusing on other things</td>
</tr>
<tr>
<td>19</td>
<td>When I’m upset, I feel out of control</td>
</tr>
<tr>
<td>20</td>
<td>When I’m upset, I can still get things done (R)</td>
</tr>
<tr>
<td>21</td>
<td>When I’m upset, I feel ashamed with myself for feeling that way</td>
</tr>
<tr>
<td>22</td>
<td>When I’m upset, I know that I can find a way to eventually feel better (R)</td>
</tr>
<tr>
<td>23</td>
<td>When I’m upset, I feel like I am weak</td>
</tr>
<tr>
<td>24</td>
<td>When I’m upset, I feel like I can remain in control of my behaviours (R)</td>
</tr>
<tr>
<td>25</td>
<td>When I’m upset, I feel guilty for feeling that way</td>
</tr>
<tr>
<td>26</td>
<td>When I’m upset, I have difficulty concentrating</td>
</tr>
<tr>
<td>27</td>
<td>When I’m upset, I have difficulty controlling my behaviours</td>
</tr>
</tbody>
</table>
28 When I’m upset, I believe that there is nothing I can do to make myself feel better

29 When I’m upset, I become irritated with myself for feeling that way

30 When I’m upset, I start to feel very bad about myself

31 When I’m upset, I believe that wallowing in it is all I can do

32 When I’m upset, I lose control over my behaviours

33 When I’m upset, I have difficulty thinking about anything else

34 When I’m upset, I take time to figure out what I’m really feeling (R)

35 When I’m upset, it takes me a long time to feel better

36 When I’m upset, my emotions feel overwhelming

Document Version: 1.1
Last Updated: 05 June 2013
Planned Review: 30 June 2018

Privacy - please note - this form does not transmit any information about you or your assessment scores. If you wish to keep your results, you must print this document. These results are intended as a guide to your health and are presented for educational purposes only. They are not intended to be a clinical diagnosis. If you are concerned in any way about your health, please consult with a qualified health professional.

SCORING THE DERS

The DERS is a brief, 36-item self-report questionnaire designed to assess multiple aspects of emotional dysregulation. Reverse-scored items are numbered 1, 2, 6, 7, 8, 10, 17, 20, 22, 24 and 34. Higher scores suggest greater problems with emotion regulation. The measure yields a total score (SUM) as well as scores on six sub-scales:

1. Non-acceptance of emotional responses (NONACCEPT)
2. Difficulties engaging in goal directed behaviour (GOALS)
3. Impulse control difficulties (IMPULSE)
4. Lack of emotional awareness (AWARE)
5. Limited access to emotion regulation strategies (STRATEGIES)
6. Lack of emotional clarity (CLARITY)

1: Nonacceptance of Emotional Responses  (NONACCEPT)

25) When I’m upset, I feel guilty for feeling that way
21) When I’m upset, I feel ashamed with myself for feeling that way
12) When I’m upset, I become embarrassed for feeling that way
11) When I’m upset, I become angry with myself for feeling that way
29) When I’m upset, I become irritated with myself for feeling that way
23) When I’m upset, I feel like I am weak

2: Difficulties Engaging in Goal-Directed  (GOALS)

26) When I’m upset, I have difficulty concentrating
18) When I’m upset, I have difficulty focusing on other things
13) When I’m upset, I have difficulty getting work done
33) When I’m upset, I have difficulty thinking about anything else
20) When I’m upset, I can still get things done (R)
## IMPROVING SELF-REGULATION OF YOUTH IN CARE

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Almost never</td>
<td>Sometimes</td>
<td>About half the time</td>
<td>Most of the time</td>
<td>Almost always</td>
</tr>
<tr>
<td></td>
<td>(0-10%)</td>
<td>(11-35%)</td>
<td>(36-65%)</td>
<td>(66-90%)</td>
<td>(91-100%)</td>
</tr>
</tbody>
</table>

### 3: Impulse Control Difficulties  (IMPULSE)

32) When I’m upset, I lose control over my behaviours  
27) When I’m upset, I have difficulty controlling my behaviours  
14) When I’m upset, I become out of control  
19) When I’m upset, I feel out of control  
3) I experience my emotions as overwhelming and out of control  
24) When I’m upset, I feel like I can remain in control of my behaviours (R)

### 4: Lack of Emotional Awareness  (AWARE)

6) I am attentive to my feelings (R)  
2) I pay attention to how I feel (R)  
10) When I’m upset, I acknowledge my emotions (R)  
17) When I’m upset, I believe that my feelings are valid and important (R)  
8) I care about what I am feeling (R)  
34) When I’m upset, I take time to figure out what I’m really feeling (R)

### 5: Limited Access to Emotion Regulation Strategies  (STRATEGIES)

16) When I’m upset, I believe that I’ll end up feeling very depressed  
15) When I’m upset, I believe that I will remain that way for a long time  
31) When I’m upset, I believe that wallowing in it is all I can do  
35) When I’m upset, it takes me a long time to feel better  
28) When I’m upset, I believe that there is nothing I can do to make myself feel better  
22) When I’m upset, I know that I can find a way to eventually feel better (R)  
36) When I’m upset, my emotions feel overwhelming  
30) When I’m upset, I start to feel very bad about myself

### 6: Lack of Emotional Clarity  (CLARITY)

5) I have difficulty making sense out of my feelings  
4) I have no idea how I am feeling  
9) I am confused about how I feel  
7) I know exactly how I am feeling (R)  
1) I am clear about my feelings (R)
### Appendix H
Preference Assessment Questionnaire

**Directions:** Review each of the items below. For each item, mark whether you find it to be a preferred item or not. 1= Not Preferred at all. 5= Very Preferred.

<table>
<thead>
<tr>
<th>Score</th>
<th>Item Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-2-3-4-5</td>
<td>The student will spend 30 extra minutes on the Internet (one day only).</td>
</tr>
<tr>
<td>1-2-3-4-5</td>
<td>The student will read of book of his or her choice.</td>
</tr>
<tr>
<td>1-2-3-4-5</td>
<td>The student will go to the library to select a book.</td>
</tr>
<tr>
<td>1-2-3-4-5</td>
<td>The student will be awarded a certificate for completing the lessons thus far.</td>
</tr>
<tr>
<td>1-2-3-4-5</td>
<td>The student will be praised privately by an adult.</td>
</tr>
<tr>
<td>1-2-3-4-5</td>
<td>The student will receive a silent “Thumbs up” or other sign indicating praise and approval.</td>
</tr>
<tr>
<td>1-2-3-4-5</td>
<td>The student will have the staff call the student’s parent to give positive feedback about him or her.</td>
</tr>
<tr>
<td>1-2-3-4-5</td>
<td>The student will have the staff write a positive note to the student’s parent.</td>
</tr>
<tr>
<td>1-2-3-4-5</td>
<td>The student will be allowed to call his or her parents.</td>
</tr>
<tr>
<td>1-2-3-4-5</td>
<td>The student will receive candy, gum or other edible treats.</td>
</tr>
<tr>
<td>1-2-3-4-5</td>
<td>The student will receive a coupon to be redeemed at a later time for a preferred activity.</td>
</tr>
<tr>
<td>1-2-3-4-5</td>
<td>The student will get 30 extra minutes of privilege time of his choosing (one priv only, one time only).</td>
</tr>
<tr>
<td>1-2-3-4-5</td>
<td>The student will chose and listen to a music selection during the next session.</td>
</tr>
<tr>
<td>1-2-3-4-5</td>
<td>The student will work on a jigsaw or other puzzle.</td>
</tr>
<tr>
<td>1-2-3-4-5</td>
<td>The student will write or draw, using a blackboard/whiteboard/easel paper.</td>
</tr>
<tr>
<td>1-2-3-4-5</td>
<td>The student will go on an hour-long one-to-one outing with a staff member for an edible treat.</td>
</tr>
<tr>
<td>1-2-3-4-5</td>
<td>The student will earn positive points towards privileges.</td>
</tr>
<tr>
<td>1-2-3-4-5</td>
<td>The student will receive a sticker.</td>
</tr>
<tr>
<td>1-2-3-4-5</td>
<td>The student will go on an hour-long one-to-one outing with staff for an approved activity.</td>
</tr>
</tbody>
</table>
Appendix I
ABC Analysis

ABC Form

Client: Number 1  Setting: Group Home
Date: Sunday October 4, 2015  Observer: Bryn Thompson

Operational Definition of Behaviour: Problematic behaviours will be defined as shouting, swearing, arguing, being verbally aggressive towards others, threatening, refusing to comply with TFM target skills (refusing to follow instructions or accept “no”), physical aggression towards others including kicking, and throwing items, and engaging in harmful or unsafe behaviours such as “AWOLing”, or self-harm.

<table>
<thead>
<tr>
<th>Time</th>
<th>Antecedent</th>
<th>Behaviour</th>
<th>Consequence</th>
</tr>
</thead>
<tbody>
<tr>
<td>7:00pm</td>
<td>1.1 Mother drops youth off at group home, gives tablet to observer, says visit did not go well.</td>
<td>1.2 Youth comes inside without talking, ignores observer and walks to kitchen.</td>
<td>1.3 Staff in kitchen says hello to youth, asks how visit was.</td>
</tr>
<tr>
<td></td>
<td>1.4 Youth ignores staff and doesn’t answer, walks out of kitchen.</td>
<td>1.5 Staff ignores youth and continues in kitchen.</td>
<td></td>
</tr>
<tr>
<td>7:10pm</td>
<td>2.1 Mother asks for hug goodbye.</td>
<td>2.2 Youth glares at mother, says no and goes upstairs to room.</td>
<td>2.3 Both staff and observer ignore youth, providing time to calm down. Say goodbye to mother.</td>
</tr>
<tr>
<td>7:18pm</td>
<td>3.1 Youth comes down from room.</td>
<td>3.2 Youth asks to use a computer priv.</td>
<td>3.3 Staff says no, that bedtimes routines must be completed before privs can be used. Instruct youth to go shower.</td>
</tr>
<tr>
<td></td>
<td>3.4 Youth gets upset and argues, saying that it’s not fair the other kids were home all day to use privs.</td>
<td>3.5 Staff prompt youth that arguing will result in earning negatives. Staff repeat instruction to go shower.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>3.6 Youth argues again and tries to talk over staff, becoming agitated.</td>
<td>3.7 Staff verbally deliver negative points for arguing and repeat instruction. Staff also</td>
<td></td>
</tr>
<tr>
<td>Time</td>
<td>Event Description</td>
<td></td>
<td></td>
</tr>
<tr>
<td>-------</td>
<td>-------------------</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
| 7:45pm | 3.8 Youth goes to shower  
3.9 Staff praise youth for following instructions. |
| 7:45pm | 4.1 Another youth asks to use the computer, staff say yes.  
4.2 Youth gets angry and shouts at staff and other youth.  
4.3 Staff tell youth they are earning more negative points for being rude to staff and arguing. Staff remind youth that they are losing their ability to use any privs if they can’t be polite to others and share. |
| 7:47pm | 5.1 Other youth makes a comment.  
5.2 Youth swears at other youth and is rude.  
5.3 Staff reprimand youth and instruct youth to sit at table to do points. |
| 7:47pm | 5.4 Youth sits on couch and refuses to do points.  
5.5 Staff tell youth they may have 10 minutes to sit quietly on the couch and calm down. |
|       | 5.6 Youth swears at staff and says they don’t need to calm down. Argues that they should be allowed to use the computer.  
5.7 Staff remind youth that if they follow instructions to do points, they may still use another priv before bed, but that the longer they argue and refuse, they will miss their chance. |
|       | 5.8 Youth refuses to do points. Stays on couch.  
5.9 Staff wait 10 minutes, provide youth with another opportunity to complete points and earn a priv. |
|       | 5.10 Youth refuses and says no.  
5.11 Staff notify youth that they have lost their opportunity to use privileges, and that unless points are completed, the youth will be on makeup the following day (cont’d). |
<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>5.12</td>
<td>Youth shouts at staff and says its not fair.</td>
<td>5.13 Youth is reminded by staff that they got to go on a home visit and other youth didn't and that privileges must be shared in the house.</td>
</tr>
<tr>
<td>8:00pm</td>
<td>5.14 Youth continues to refuse to do points, periodically rude to other youth.</td>
<td>5.15 Staff instruct youth that they can complete points, or go to bed if they are going to continue to be rude. Youth has lost their time to use a priv as it is too late in the evening.</td>
</tr>
<tr>
<td></td>
<td>5.16 Youth refuses and sits on couch quietly.</td>
<td>5.17 Staff ignore youth.</td>
</tr>
<tr>
<td>8:10pm</td>
<td>5.18 Youth puts self to bed.</td>
<td>5.19 No points were completed – youth is on makeup the following day.</td>
</tr>
</tbody>
</table>
Operational Definition of Behaviour: Problematic behaviours will be defined as shouting, swearing, arguing, being verbally aggressive towards others, threatening, refusing to comply with TFM target skills (refusing to follow instructions or accept “no”), physical aggression towards others including kicking, and throwing items, and engaging in harmful or unsafe behaviours such as “AWOLing”, or self-harm.

<table>
<thead>
<tr>
<th>Time</th>
<th>Antecedent</th>
<th>Behaviour</th>
<th>Consequence</th>
</tr>
</thead>
<tbody>
<tr>
<td>7:00pm</td>
<td>1.1 Youth loses card game with staff member.</td>
<td>1.2 Youth accuses staff member of cheating, goes to room.</td>
<td>1.3 Staff follows youth to room.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1.4 Youth attempts to slam door, yells at staff member to go away.</td>
<td>1.5 Staff prevents door from shutting, and stands in doorway. Observer calls oncall.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1.6 Youth continues yelling, begins to swear at staff and attempt to push door closed.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>1.7 Staff begins to instruct youth to go sit on the bed.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>1.8 Youth continues to scream and swear at staff. Continues to push on door.</td>
<td>1.9 Staff continues intensive teaching from doorway, giving instructions for youth to sit on the bed. Observer supports and updates oncall.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1.10 Youth continues to scream and refuse. Begins to attempt to push past staff.</td>
<td>1.11 Staff moves out of the way and continues intensive teaching to youth.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1.12 Youth continues to scream refusal and begins to pack bookbag, telling staff they are leaving.</td>
<td>1.13 Staff block doorway and continue intensive teaching. Observer updates oncall.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1.14 Youth continues yelling and swearing at staff. Youth begins to threaten to harm staff.</td>
<td>1.15 As per oncall, staff unblock the doorway and keep distance from youth.</td>
</tr>
<tr>
<td>Time</td>
<td>Event Description</td>
<td></td>
<td></td>
</tr>
<tr>
<td>----------</td>
<td>-----------------------------------------------------------------------------------</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.16</td>
<td>Youth leaves group home with bookbag and begins walking down the street.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.17</td>
<td>Observer follows youth down the street.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.18</td>
<td>Youth walks for about 20 minutes, periodically running.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.19</td>
<td>Observer follows youth, keeping youth in sight.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.20</td>
<td>Youth stops on sidewalk and tells observer to stop following.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.21</td>
<td>Observer responds that they must, uses empathy statements and praise to encourage youth to come home.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.22</td>
<td>Youth takes off and darts down a back alley. Picks up stones and begins to threaten observer.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.23</td>
<td>Observer keeps distance, intensively teaching to youth to put stones down.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.24</td>
<td>Youth runs off around the corner of the alley.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.25</td>
<td>Observer loses visual of the youth. Continues looking for 30 minutes while updating oncall.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>8:30pm</td>
<td>2.1 Observer is picked up by coworker. Continue looking in car. Receive word that youth is at mother’s house.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.2</td>
<td>Youth is sitting at front door of mother’s house crying.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.3</td>
<td>Observer and staff approach youth and begin with empathy statements and praise.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.4</td>
<td>Youth shakes head and quietly refuses to come back.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.5</td>
<td>Staff begin gently intensively teaching to youth to come back using rationales, and empathy.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>9:00pm</td>
<td>2.6 Youth complies and gets in car.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>2.7 Staff bring youth home.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Client: Number 1  
Setting: Group Home  
Date: Thursday October 8, 2015  
Observer: Bryn Thompson

Operational Definition of Behaviour: Problematic behaviours will be defined as shouting, swearing, arguing, being verbally aggressive towards others, threatening, refusing to comply with TFM target skills (refusing to follow instructions or accept “no”), physical aggression towards others including kicking, and throwing items, and engaging in harmful or unsafe behaviours such as “AWOLing”, or self-harm.

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<thead>
<tr>
<th>Time</th>
<th>Antecedent</th>
<th>Behaviour</th>
<th>Consequence</th>
</tr>
</thead>
<tbody>
<tr>
<td>3:00pm</td>
<td>1.1 Youth arrives home from school.</td>
<td>1.2 Youth immediately asks to do points with observer.</td>
<td>1.3 Observer responds that points will be completed once after school routines are finished.</td>
</tr>
<tr>
<td>3:03pm</td>
<td>2.1 Observer instructs youth to complete their after school routine.</td>
<td>2.2 Youth completes routine – cleans room and gets a snack.</td>
<td>2.3 Youth is praised for following instructions.</td>
</tr>
<tr>
<td>3:15pm</td>
<td>3.1 Observer engages with another youth.</td>
<td>3.2 Youth interrupts loudly and requests to do points, gets upset that other youth is doing points.</td>
<td>3.3 Observer assures youth that points will be completed, and that there is a lot to go over. Reminds youth not to interrupt.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3.4 Youth waits patiently at table.</td>
<td>3.5 Observer begins points with youth including delivering a subsystem, teachings and subsequent positive points.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3.6 Youth writes all points down.</td>
<td>3.7 Youth is praised for accepting consequences.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3.8 Youth asks questions about subsystem.</td>
<td>3.9 Staff answers questions and repeats teachings with rationales as reminder.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3.10 Youth says ok.</td>
<td>3.11 Staff praise youth for saying ok.</td>
</tr>
</tbody>
</table>
Appendix J
Modified Zones of Regulation Detailed Lesson Plan

Session 1: Lessons 1 & 13

Lesson 1 - Posters
- Begin by explaining the purpose of the Zones project
  o Provide youth with tools to help them
  o Help them recognize their feelings that indicate they should use a tool
  o Help them recognize when their actions may not be appropriate for a certain situation.
- Explain the Zones categories
  o Red – crisis or break down situation
  o Yellow – becoming agitated or hyper, frustrated, or silly
  o Green – happy, content, peaceful
  o Blue – sad, glum, depressed, not feeling well, tired
- There are no bad Zones
  o No zone is good or bad, but there are times when some zones are appropriate for certain situations, and others are not.
  o We need to be able to recognize what zone we are in/what we are feeling,
  o We need to be able to draw upon helpful tools to assist us in moving to another zone.
- Activity 1: Posters
  o Take the emotion cut outs and glue them to the appropriate zone.
  o When and where do you feel this emotion the most?
  o How do you usually deal with this emotion?

Lesson 13 - Toolbox
- Tool Box Print out
  o This is a personal poster we will make throughout these sessions where you can write down the tools that will be most helpful for each zone.
Session 2: Lessons 5 & 3

Lesson 5: Different Perspectives
- Different behaviours for the same Feelings
  o No feelings are bad. Sometimes though how we choose to act out those feelings is not appropriate for the situation
  o We can behave in expected and unexpected ways
  o When we behave in unexpected ways, this can affect how others feel about us and what they think of us.
- Activity 1: Social Behaviour Map
  o Complete 4 options for each Zone (2 expected and 2 unexpected for each Zone)

Lesson 3: Emotions in Others
- Client 1 = No Assembly Required (YouTube)
- Use coloured cards to guess what zone the character is in a different times
  o What is the main character probably feeling?
  o What Zone would that fall into?
  o How do the other characters feel when the main character is in that zone?
  o Is that reaction appropriate for the situation?
  o How else could the character have dealt with it?

Session 3: Lessons 9 & 11

Lesson 9: Caution! Triggers Ahead
- Triggers are events or situations that can push us into the yellow or red zone
- When we can identify our triggers, it becomes easier to use coping strategies to us manage these triggers before we end up in the red zone.
  o Personal example: I get stressed when….
- Activity 1: Triggers Worksheet
  o Fill in the Triggers worksheet with some of your triggers that you are aware of.
  o What are some strategies that are helpful in dealing with your triggers?

Lesson 11: Exploring Tools for Calming
- What are some tools or strategies that help you calm down?
- We’re going to talk about and practice some different breathing exercises that may be helpful for you when you are feeling triggered.
  o Six Sides of Breathing
  o Lazy 8 Breathing
  o Calming sequence
  o Count to Ten
- Which ones are most helpful? Lets add these to the toolbox list
Session 4: Lesson 8

Lesson 8: My Zones Across the Day
- Gain awareness in personal triggers and recognize that zones change across the day
- Reflect on whether behaviour was expected or unexpected.
- Celebrate successes of the day.
- Activity 1: Graphing Zones
  - Colour in zones on the side of the graph
  - Fill in periods or activities of the day at the bottom
    - Morning routine, classes, recesses/lunch, after school activities, bedtime routine.
  - Talk about what happened during those zones – what behaviours were expressed.

Session 5: Lesson 12

Lesson 12: Exploring Tools - Thinking Strategies
- Size of the Problem
  - Use a visual scale to measure the size of the problem
  - Analyze/discuss the emotional response
  - Discuss how some responses are disproportionate the size of the problem.
  - Different sized problems require different reactions and solutions.
  - Define what different sized problems are
    - Big problems – no easy, quick, pleasant solutions
    - Medium problems – can be resolved in an hour or a couple of days
    - Little problems – can be resolved in a few minutes or ignored
  - Brainstorm different problems, label their size, and the appropriate reaction zone, as well as solutions
- Inner Coach vs. Inner Critic
  - Discuss what the voice inside our head says when we are upset sometimes
  - Are they negative things or positive things?
  - What are some positive things we can think of when we are upset that will help?
    - Inner Coach – helps us through difficult times, lifts us up
    - Inner Critic – negative thoughts that don’t help us, and keep us from doing well.
  - Fill out the inner coach and critic worksheets
- Rock Brain
  - Flexible thinking allows us to problem solve and find other solutions
  - Rigid thinking or Rock Brain causes us to get stuck on one idea and not be able to see other possibilities.
  - Use physical representations (sponge and a rock) to describe how flexible thinking and rock brain thinking work.
  - Discuss what zones flexible thinking will work best in.
  - Discuss how flexible and rigid thinking relate to inner coach/critic.
## Appendix K
Event Recording of Dependent Variables During Baseline

### Name: Participant

### Date(s): October 12, 2015 – October 27, 2015

### Observers: Group Home Staff

### Setting: Group Home

<table>
<thead>
<tr>
<th>Date / Time Interval</th>
<th>Occurrences of Target Behaviours</th>
<th>Comments / Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Self-Regulation Behaviours</td>
<td>TFM Target Skills</td>
</tr>
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<td>October 12, 2015</td>
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<td>8</td>
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<tr>
<td>October 13, 2015</td>
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<td>1</td>
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<tr>
<td>October 14, 2015</td>
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<td>October 15, 2015</td>
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<td>2</td>
</tr>
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<td>October 16, 2015</td>
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<td>October 17, 2015</td>
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<td>October 18, 2015</td>
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<td>October 19, 2015</td>
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<tr>
<td>October 20, 2015</td>
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<tr>
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<td>October 26, 2015</td>
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<td>4</td>
</tr>
<tr>
<td>October 27, 2015</td>
<td>2</td>
<td>5</td>
</tr>
</tbody>
</table>

- Express emotions
- Raise a concern and brainstorm with staff
- Raise a concern and express emotions

### Baseline Data Collection

- **Self-Regulation Behaviours**
- **TFM Target Skills**
- **Problematic Behaviours**

[Table of occurrences and notes]
**Appendix L**

**Event Recording of Dependent Variables During Intervention**

Name: Participant

Observers: Group Home Staff

Date(s): October 28, 2015 – November 26, 2015

Setting: Group Home

<table>
<thead>
<tr>
<th>Date / Time Interval</th>
<th>Occurrences of Target Behaviours</th>
<th>Comments / Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Self-Regulation Behaviours</td>
<td>TFM Target Skills</td>
</tr>
<tr>
<td>October 28, 2015</td>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>Session 1</td>
<td>Raise a concern and express emotions</td>
</tr>
<tr>
<td>October 29, 2015</td>
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<tr>
<td>November 2, 2015</td>
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<td>6</td>
</tr>
<tr>
<td></td>
<td>Session 2</td>
<td>Express emotions, and ask for help</td>
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<tr>
<td>November 3, 2015</td>
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<td>November 4, 2015</td>
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<tr>
<td>November 5, 2015</td>
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<td>Stay calm/breathing and ask for help</td>
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<tr>
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<td>Stay calm/breathing</td>
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### IMPROVING SELF-REGULATION OF YOUTH IN CARE

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**Session 4**
- Express emotions

**Session 5**
- Express emotions
Appendix M
Event Recording of Dependent Variables During Follow-up

Name: Participant  Date(s): November 27, 2015 – December 10, 2015
Observers: Group Home Staff  Setting: Group Home

<table>
<thead>
<tr>
<th>Date / Time Interval</th>
<th>Occurrences of Target Behaviours</th>
<th>Comments / Notes</th>
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Appendix N
Calculations for Stability of Dependent Variables Across all Phases

Baseline Stability of Self-Regulation Behaviours
Baseline median = 0
12.5% of 0
= (0-0) to (0+0)
Therefore, 10 out of the 14 data points fell within 25% of the median value.
\[
\frac{10}{14} \times 100 = 71.43\%
\]

Baseline Stability of TFM Target Skills
Baseline median = 5
12.5% of 5
= 0.63
= (5-0.63) to (5+0.63)
= 4.37 to 5.63
Therefore, 2 out of the 14 data points fell within 25% of the median value.
\[
\frac{2}{14} \times 100 = 14.29\%
\]

Baseline Stability of Problematic Behaviours
Baseline median = 1
12.5% of 1
= 0.13
= (1-0.13) to (1+0.13)
= 0.87 to 1.13
Therefore, 4 out of the 14 data points fell within 25% of the median value.
\[
\frac{4}{14} \times 100 = 28.57\%
\]

Intervention Stability of Self-Regulation Behaviours
Intervention median = 0
12.5% of 0
= (0-0) to (0+0)
Therefore, 20 out of the 27 data points fell within 25% of the median value.
\[
\frac{20}{27} \times 100 = 74.07\%
\]

Intervention Stability of TFM Target Skills
Intervention median = 4
12.5% of 4
= 0.50
= (4-0.50) to (4+0.50)
= 3.50 to 4.50
Therefore, 5 out of the 27 data points fell within 25% of the median value.
\[
\frac{5}{27} \times 100 = 18.52\%
\]
**Improving Self-Regulation of Youth in Care**

**Intervention Stability of Problematic Behaviours**
Intervention median = 1
12.5% of 1
= 0.13
= (1-0.13) to (1+0.13)
= 0.87 to 1.13
Therefore, 9 out of the 27 data points fell within 25% of the median value.
\[
[(9/27)*100] = 33.33\%
\]

**Follow-up Stability of Self-Regulation Behaviours**
Follow-up median = 0
12.5% of 0
= (0-0) to (0+0)
Therefore, 13 out of the 14 data points fell within 25% of the median value.
\[
[(13/14)*100] = 92.86\%
\]

**Follow-up Stability of TFM Target Skills**
Follow-up median = 4
12.5% of 4
= 0.50
= (4-0.50) to (4+0.50)
= 3.50 to 4.50
Therefore, 6 out of the 14 data points fell within 25% of the median value.
\[
[(6/14)*100] = 42.86\%
\]

**Follow-up Stability of Problematic Behaviours**
Follow-up median = 0
12.5% of 0
= (0-0) to (0+0)
Therefore, 9 out of the 14 data points fell within 25% of the median value.
\[
[(9/14)*100] = 64.29\%
\]
Appendix O
Calculations for PEM of Dependent Variables

PEM for Self-Regulation Behaviours

\[ \frac{8}{41} \times 100 = 19.51\% \]
Therefore, 8 of the 41 intervention and follow-up data points fell above the baseline median of 0.

PEM for TFM Target Skills

\[ \frac{6}{41} \times 100 = 14.63\% \]
Therefore, 6 of the 41 intervention and follow-up data points fell above the baseline median of 5.

PEM for Problematic Behaviours

\[ \frac{20}{41} \times 100 = 48.78\% \]
Therefore, 20 of the 41 intervention and follow-up data points fell below (decreasing behaviour) the baseline median of 1.
Appendix P
Calculations for PND of Dependent Variables

**PND for Self-Regulation Behaviours**
\[
\left( \frac{0}{41} \right) \times 100 = 0\%
\]
Therefore, 0 of the 41 intervention and follow-up data points fell above the highest baseline data point of 2.

**PND for TFM Target Skills**
\[
\left( \frac{0}{41} \right) \times 100 = 0\%
\]
Therefore, 0 of the 41 intervention and follow-up data points fell above the highest baseline data point of 10.

**PND for Problematic Behaviours**
\[
\left( \frac{40}{41} \right) \times 100 = 97.56\%
\]
Therefore, 40 of the 41 intervention and follow-up data points fell below (decreasing behaviour) the highest baseline data point of 6.
Appendix Q
Detailed Graphs With Trend Lines

Figure M1. Frequency of the Participant’s Self-Regulation Behaviours
Figure L2. Frequency of the Participant’s TFM Target Skills

Figure M3. Frequency of Participant’s Problematic Behaviours
Figure M4. Frequency of the Participant’s Target Behaviours