

**The Effects of a Play-Based Social Emotional Learning Program on Problem Behaviour  
and Social Responsibility**

by

Alina Frances Lyons

BSc, University of Toronto, 2009

A THESIS SUBMITTED IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR  
THE DEGREE OF

MASTER OF ARTS

in

The Faculty of Graduate and Postdoctoral Studies

(School Psychology)

THE UNIVERSITY OF BRITISH COLUMBIA  
(Vancouver)

October 2014

© Alina Frances Lyons, 2014

## Abstract

A growing realization of the importance of addressing social–emotional, in addition to academic, development in schools highlights the importance of establishing an evidence base for SEL initiatives. The current study is an evaluation of one SEL initiative, Play Is The Way™ (McCaskill, 2011) which uses physically interactive games to promote social-emotional competencies and positive school climates.

Play Is The Way™ was implemented in 5 classrooms of one elementary school. Five additional classrooms delayed implementation and served as comparison classrooms. Across the 10 Kindergarten through Grade 7 classrooms, 79 students were randomly selected and outcome measures were completed by teachers for those students before and after the intervention was implemented. Outcome measures included the Social Responsibility Quick Scale (British Columbia Ministry of Education, 2001), a measure of social responsibility, and the Behavior Assessment Scale for Children – Second Edition (Reynolds & Kamphaus, 2004), a measure of problem behaviour. A mixed-effects analysis of variance was used to determine if there were increases in social responsibility and decreases in problem behaviour in implementing classrooms. Gender and grade were included as predictors. Significant interactions were found on the externalizing outcome variable, between treatment group and gender, and on both the externalizing and internalizing outcome variables, between treatment group and grade. Results do not clearly support the use of PITW to reduce externalizing and internalizing behaviours, or to increase social responsibility in elementary students. Effect sizes indicated medium reductions in externalizing behaviours for upper elementary students and for male students; medium increases in externalizing behaviours for female and upper elementary students; medium reductions in internalizing behaviours for upper elementary; and large increases in internalizing behaviours for

lower elementary students. Effect sizes indicating medium increases in social responsibility in the treatment group.

Limitations of the current study include that classrooms were not randomly assigned to conditions, measures were completed by classroom teachers who also implemented the program, fidelity information was not available, and baseline ratings on the BASC-2 indicated a lack significant challenges in the areas measured by outcome variables. Results are discussed in light of these limitations, and the implications for future research and practice.

## Preface

The present study was conducted by the graduate student (Alina Lyons), under the supervision and direction of her research supervisor (Dr. Sterett Mercer), and Dr. Kent McIntosh. Dr. Kent McIntosh was responsible for the recruitment of the participating school. Data collection was conducted via a school contact, with guidance from the graduate student and Drs. McIntosh and Mercer. The graduate student was responsible for the analysis and writing of the present study. The research supervisor provided guidance throughout the analysis and writing stages. Several documents (research measures, consent forms, ethics application) were adapted with permission from a previous attempt at this evaluation by the graduate student Sophie Ty. Preliminary results from this evaluation were presented at the Annual Conference of the Canadian Psychiatric Association in June, 2014 [Lyons, A., Mercer, S., Ty, S., & McIntosh, K. (2014). *The Effects of a Play-Based SEL Program on Problem Behaviour and Social Responsibility*. Poster presented at the Canadian Psychological Association's 75th Annual Convention in Vancouver, BC]. This poster represents writing and analysis conducted by Alina Lyons, under the supervision of the research supervision, as well as contributions by Dr. Kent McIntosh and Sophie Ty. Approval to conduct research in the school district and ethics approval from the UBC Behavioural Research Ethics Board (BREB) were sought and granted prior to the study's occurrence. The UBC BREB certificate number is H11-01356.

## Table of Contents

Abstract.....	ii
Preface.....	iv
Table of Contents.....	v
List of Tables.....	viii
List of Figures.....	ix
Chapter 1: Introduction.....	1
1.1 A Brief History of Social Emotional Learning.....	2
1.2 Definition.....	4
1.3 SEL Theoretical Background.....	5
1.3.1 Risk and Resilience.....	5
1.3.2 Social Theories.....	6
1.3.3 Transactional Theories.....	7
1.3.4 Emotional Intelligence.....	7
1.3.5 A Model of SEL.....	7
1.4 SEL and School.....	8
1.5 Core Competencies of SEL.....	10
1.5.1 CASEL Five Core Competencies.....	10
1.5.2 Self-Awareness.....	11
1.5.3 Self-Management.....	11
1.5.4 Social Awareness.....	11
1.5.5 Responsible Decision Making.....	12
1.5.6 Relationship Skills.....	12
1.6 SEL Programs.....	13
1.7 Evidence for SEL Programs.....	15
1.7.1 Meta-Analyses.....	15
1.7.2 Randomized Controlled Trial.....	17
1.8 Limitations of Research.....	18

1.9 Play Is The Way.....	20
1.9.1 Evidence for Play Is The Way. ....	21
1.10 Current Study.....	23
1.10.1 Purpose of the Study.....	23
Chapter 2: Method.....	24
2.1 Participants and Settings.....	24
2.1.1 Power Analysis.....	25
2.2 Measures.....	25
2.2.1 Behavior Assessment Scale for Children-Second Edition.....	25
2.2.2 Social Responsibility Quick Scale.....	26
2.3 Procedure.....	27
2.3.1 Recruitment.....	27
2.3.2 Data Collection.....	28
2.3.3 Intervention.....	29
2.4 Design and Analysis.....	31
2.4.1 Testing Basic Assumptions of Mixed Effects ANOVA.....	32
Chapter 3: Results.....	33
3.1 Baseline Equivalency ANOVAs.....	33
3.2 Mixed Effects ANOVAs.....	36
3.2.1 Assumptions of Normality and Homoscedasticity.....	39
3.2.2 Outlier Analysis.....	39
3.2.3 Externalizing Behaviours.....	39
3.2.4 Internalizing Behaviours.....	42
3.2.5 Adaptive Skills.....	43
3.2.6 Social Responsibility.....	44
Chapter 4: Discussion.....	46
4.1 Baseline Differences.....	46

4.2 Main Findings .....	46
4.2.1 Externalizing Behaviours.....	46
4.2.2 Internalizing Behaviours.....	47
4.2.3 Adaptive Skills.....	48
4.2.4 Social Responsibility .....	48
4.2.5 Summary of Main Findings. ....	49
4.3 Limitations .....	51
4.4 Implications for Future Research and Practice .....	53
References.....	55

## List of Tables

Table 2.1 Play Is The Way Life Raft Key Concepts and Session Content.....	29
Table 3.1 Descriptive Statistics.....	34
Table 3.2 Tests of Baseline Equivalency .....	35
Table 3.3 Type III Tests of Fixed Effects .....	38
Table 3.4 Variances for Random Intercept and Residuals.....	38
Table 3.5 Effect Sizes .....	39

## List of Figures

Figure 3.1 Baseline Means for Externalizing by Gender.....	36
Figure 3.2 Baseline Means for Externalizing by Grade.....	36
Figure 3.3 Baseline Means for Internalizing by Grade.....	37
Figure 3.4 Mean Change Scores by Gender on the Externalizing Outcome Variable .....	41
Figure 3.5 Mean Change Scores by Grade on the Externalizing Outcome Variable .....	41
Figure 3.6 Mean Change Scores by Grade on the Internalizing Outcome Variable.....	43
Figure 3.7 Mean Change Scores by Treatment Group on the Adaptive Skills Outcome Variable. .....	44
Figure 3.8 Mean Change Scores by Treatment Group on the Social Responsibility Outcome Variable.....	45

## **Chapter 1: Introduction**

The last few decades has seen a realization of the importance of addressing social–emotional as well as academic development in schools among educators and researchers (Elias & Haynes, 2008). Numerous studies have supported the positive impact of social emotional learning (SEL) on a variety of social, emotional, and academic outcomes. For example, mastery of SEL competencies has been linked to increased self-esteem, school bonding, positive social behaviours, and reductions in behaviour problems and emotional distress (Durlak, Weissberg, Dymnicki, Taylor, & Schellinger, 2011). In addition, social-emotional factors have been found to be related to school drop-out (Zins & Elias, 2007). In both Canada and the U.S., education policy and legislation has begun to reflect the importance of SEL skills and this has led to their integration into regular academic instruction. This increase in SEL programming in schools highlights the importance of establishing evidence bases for the SEL initiatives that are promoted, as well as increasing the capacity for schools to implement such initiatives. In this context, research examining the programs that are actually being implemented in schools is important in order to ensure that they are high quality, effective programs.

The current study is an evaluation of one SEL initiative, Play Is The Way™ (McCaskill, 2011), which uses physically interactive games to promote social-emotional competencies and positive school climates. This study aims to expand the research literature examining the effectiveness of SEL programming and specifically play-based SEL interventions. The following section is a review of the history of SEL in North America, the emergence of SEL in schools, theoretical frameworks and current models of SEL, and the current state of evidence for SEL programs.

## **1.1 A Brief History of Social Emotional Learning**

The term social-emotional learning (SEL) emerged from a 1994 Fetzer Institute conference on school-based efforts to target developmental, psychological, educational and general health needs of children (Elbertson, Brackett, & Weissberg, 2010). This term reflected the belief that these competencies were necessary for students to engage fully and learn effectively at school (Elias, Parker, & Kash, 2007). The field of SEL emerged from prevention and resilience research (Zins & Elias, 2007). Exposure to various risk factors, such as the absence of supportive and caring relationships or exposure to violence or poverty, is not an uncommon experience for many children. This exposure may negatively impact the development of social-emotional competencies (Sameroff & Fiese, 2000). However, not all children who experience these risk factors go on to experience negative outcomes (O'Dougherty Wright & Masten, 2005). This finding led to a focus on positive factors that promote mental health and well-being, as opposed to negative factors that lead to poor outcomes (Schonert-Reichl, Stewart Lawlor, Oberle, & Thomson, 2009). Social-emotional learning (SEL) was part of a shift from preventing mental health problems and problem behaviours, towards the promotion of social competencies (Elias et al., 2007). The Collaborative for the Advancement of Social and Emotional Learning (CASEL), which is an organization founded to explore the impact of social-emotional factors on school performance, was formed from the 1994 Fetzer Institute conference (Elbertson et al., 2010). CASEL was founded to “support schools and families in their efforts to educate knowledgeable, responsible, and caring young people, who will become productive workers and contributing citizens in the 21<sup>st</sup> century,” (Elias et al., 1997, p. viii). CASEL’s initial goal was to establish SEL as an essential part of education systems, as well as to ensure that SEL programs were high-quality and evidence-based by connecting theoretical and practical

components of SEL for use in school settings (Elias et al., 2007). In 1997, the founders of CASEL published the book *Promoting Social and Emotional Learning* (Elias et al., 1997), which delineated the primary domains of SEL and served as a guide for educators in implementing effective practices for promoting SEL among children.

Near the time of the Fetzer Institute Conference, a report was published by the National Academy of Sciences' Institute of Medicine in the U.S., which determined that insufficient evidence existed to consider mental health promotion efforts to be preventative measures (1994). This report called for the establishment of an evidence base. This was at a time when interest in SEL was growing among researchers and school personnel. In 1997, a review of research and a poll of national experts revealed that of the 11 most important factors believed to be involved in learning, 8 were related to social emotional learning (e.g., student-teacher social interactions, classroom climate, and peer groups; Wang, Haertel, & Walberg, 1997).

Since the publication of CASEL's first guide in 1997, the number of SEL programs that have been developed and researched both in North America and internationally has increased dramatically (Reicher, 2010). In a meta-analysis of SEL programs, Durlak et al. (2011), found 213 studies of SEL interventions that involved 270,034 students from kindergarten through high school, 75% of which were published between 1987 and 2007. In 2005, a review of U.S. school practices revealed that 59% of schools had programs in place which targeted social-emotional competencies (Foster et al., 2005).

In 2009, after reviewing the research conducted since their 2004 report, the Institute of Medicine concluded that the promotion of social emotional competencies can serve to treat *and* prevent mental, emotional, and behavioural disorders. Social-emotional development is now included in the Head Start Program, a federally sponsored early childhood program for at-risk

children in the U.S. (Fantuzzo, Bulotsky-Shearer, McDermott, McWayne, & Frye, 2007). In addition, forty-nine U.S. states currently have comprehensive standards for social emotional competencies in preschool, three states have comprehensive standards for Kindergarten through High School, and most states have standards integrated into other curricular areas or are in the process of developing separate standards for social emotional competencies (Dusenbury, Weissberg, Goren, & Domitrovich, 2014).

In Canada, there has been a similar trend towards the inclusion of social emotional initiatives in schools. In 2006 a national study was conducted that outlined the major areas of concern for children's mental health. These included bullying and fighting behaviours, as well as emotional wellbeing (Public Health Agency of Canada, 2006). This study identified home and school settings as the best locations for interventions designed to improve the health and wellbeing of young people, and noted that peer environments should also be targeted. In 2000, the British Columbia Ministry of Education identified social responsibility, the term for SEL in B.C., as one of four foundational skills, essentially equating its importance with reading, writing, and numeracy. Although inclusion of social responsibility in schools' curricula is not mandatory in B.C., evaluating and reporting on these competencies is, and many schools teach aspects of social responsibility to children. In 2007, the Ontario government announced an initiative to support character education in schools. Specifically, this initiative was developed to support social, ethical, and academic behaviour by targeting teaching practices and infusing these goals into school cultures and curriculums (Schonert-Reichl & Hymel, 2007).

## **1.2 Definition**

There is no consensus on the definition of SEL (Schonert-Reichl et al., 2009). One widely used definition, put forward by CASEL (2013), states that SEL is "the process of learning

and applying the knowledge, attitudes, and skills necessary to identify and manage emotions, show concern and understanding for others, make responsible decisions, nurture positive relationships, and accomplish positive goals” (Collaborative for Academic Social and Emotional Learning, 2013). SEL has also been defined in terms of the outcome of behaviour. According to Denham and Brown, SEL is the ability to be effective in one’s interactions with others and is “the result of organized behaviors that meet short- and long-term developmental needs” (2010, p. 654). In B.C., Social Responsibility includes four domains as outlined by the B.C. Ministry of Education (2001): contributing to the classroom and school community, solving problems in peaceful ways, valuing diversity and defending human rights, and exercising democratic rights and responsibilities.

### **1.3 SEL Theoretical Background**

SEL draws from several theories including theories of risk and resilience, social theories, transactional theories, and theories of emotional intelligence. When these theories are considered together, SEL is seen as a set of skills that rely on an individual’s ability to understand and regulate emotions, are governed by social factors, can serve a protective role throughout an individual’s development, and involve the person, his or her environment, and the interaction between them. These theories, as well as a model of SEL that draws on each of these theories, are reviewed briefly here.

**1.3.1 Risk and Resilience.** Students success in school is influenced by their neighbourhood, their family, the school they attend, and the resources available to them both at school and outside of school (Dalton, Elias, & Wandersman, 2001). However, not all students who grow up in disadvantaged situations experience negative outcomes. Resilience is the ability to overcome adverse or challenging circumstances and implies a protective role that compensates

for deficits and predicts positive outcomes (Goldschmidt, 2008). O'Dougherty Wright and Masten (2005) discuss the concept of resilience and protective processes (Dalton et al., 2001). Protective processes are the “strengths or resources associated with positive individual outcomes,” (Dalton et al., 2001, p. 245), and include the supports or resources available to the individual from others (Elias & Haynes, 2008). In schools for example, students’ perceived support from their teachers and peers has been found to be related to positive school experiences and outcomes (e.g., Baker, 1999; Cauce, Felner, & Primavera, 1982; Dubow & Tisak, 1989; Esposito, 1999; Gonzales, Cauce, Friedman, & Mason, 1996). Social-emotional skills are also seen as protective factors, which exist within the individual, and can thus mediate the impact of adverse circumstances (Elias & Haynes, 2008).

**1.3.2 Social Theories.** According to social learning theory (e.g., Bandura, 1971), individuals are constantly evaluating their own behaviours and those of others, as well as the resulting consequences, and creating self-regulatory systems that govern behaviour. Social control theory (e.g., Hirschi & Gottfredson, 1990) views behaviour as controlled by a system of regulatory mechanisms put in place by society to control behaviour. Problem behaviours are viewed as the result of internal factors (e.g., a lack of empathy, risk-seeking behaviours, poor decision making) and a lack of connectedness to supports (e.g., from school, family, peers) which would otherwise govern behaviour. Combining social learning theory and social control theories, Hawkins and Weis (1985) proposed a social developmental theory, which placed attachment to others as the central protective factor against the development of negative behaviours. Attachment to others leads to participation in group activities, the development of social skills, reinforcement for prosocial behaviours, and inhibition of negative behaviours (Hawkins & Weis, 1985).

**1.3.3 Transactional Theories.** Transactional theories consider reciprocal influences across several levels including genetic, biological, behavioural, social, and environmental. These theories view an individual as an active participant and contributor to his or her developmental pathway and consider the role of many different contextual influences on the individual. According to Sameroff and Chandler (1975), for example, propose that a child can be influenced by, and also have an influence on, his or her environment. From this perspective, an individual's behaviour can impact the classroom or school setting and can in turn elicit negative (or positive) feedback. This can create a feedback loop in which the interaction between a child and his or her environment may become increasingly negative.

**1.3.4 Emotional Intelligence.** The field of emotional intelligence (EI) centres on the influence of emotions on how people think and behave, and the ability to regulate emotions both in oneself and in others to facilitate social, emotional, and academic success (Lopes, Mestre, Guil, Kremenitzer, & Salovey, 2012). Various researchers (e.g., Goleman, 1995; Mayer & Salovey, 1997) have identified components of EI which were influential in the conceptualization of the individual skills that make up SEL (Elias et al., 2007). These components are seen as an interrelated set of skills that function together to allow an individual to interact with others. They include the ability to perceive emotions in oneself and others, to manage emotions to facilitate outcomes, to understand emotional reactions and how emotions change over time, to manage emotions in self and others, and to engage in social problem solving.

**1.3.5 A Model of SEL.** Denham and Brown's (2010) model of SEL situates the CASEL core competencies in a developmental context while considering the transaction between the individual and his or her environment. This model emphasizes changes in social-emotional maturity and the associated behaviour changes throughout childhood. According to this model,

the early childhood years are largely about learning to regulate emotional arousal while engaging positively with peers. These early social goals must be navigated within the context of school, for example the need to sit still, listen attentively, follow directions, and work in groups. In middle childhood, interactions involve more complex relationships, and the concepts of peer inclusion and acceptance become primary. According to Denham and Brown the importance of when, and how, to show emotion is central during this stage. School settings require demonstration of these social emotional goals as academic demands become greater and more varied and students are expected to demonstrate more autonomy. This model, which is an adaptation of Rose-Krasnor's (1997) model of SEL, includes the five CASEL core competencies at the lowest, and primarily individual or intrapersonal, level. These core competencies are based on the components of EI discussed above, and are seen as the actual abilities, behaviours, and motivations that are integral to achieving developmentally appropriate social emotional tasks. At the top of the model is effectiveness in social interaction which is the result of the organization of behaviours in order to succeed at developmentally appropriate tasks (Denham & Brown, 2010). In between is the balance of interpersonal and intrapersonal factors and goals, for example the child's ability to interact with others and his or her interpretation of those interactions, as well as all of the various contexts in which these interactions take place (Denham & Brown, 2010).

#### **1.4 SEL and School**

Two key assumptions underlie the relationship between SEL and school success. These are that relationships create a foundation for all learning and that what and how we learn is affected by our emotions (Elias et al., 1997). Various explanations have been proposed for this relationship. For example, Raver and Knitzer (2002) outlined a potential pathway of the

implications of SEL competencies in the classroom setting. Young children who lack emotional and social competencies participate less in classrooms and are less accepted by their peers and teachers. As a consequence, they receive less instruction and less positive feedback (Raver & Knitzer, 2002). Children with successful relationships have more opportunities to learn about successful behaviours, motivation, and values (Denham & Brown, 2010). Positive interactions with students and teachers also provide opportunities for language learning and cognitive and social information processing (Denham & Brown, 2010). In addition, Toplak, West, and Stanovich (2013) suggest that students who are able to understand themselves and others, and who can regulate their behaviour, are more likely to find the classroom easier to manage, have more friends, and are better able to focus on learning, and thus benefit maximally from instructions. Evidence supports the claim that these early social-emotional competencies predict later academic performance, even when cognitive skills and family backgrounds are considered. For example, children with deficits in social-emotional competences tend to be more aggressive and antisocial, do less well on academic tasks, and are more likely to be held back or to drop out (Raver & Knitzer, 2002).

Other explanations for the relationship between SEL and school success include the role of self-awareness and problem solving. Students who are more confident and self-aware about their learning abilities have been found to try harder and to persist when they encounter challenges (Aronson, 2002). Those who problem-solve effectively to overcome obstacles, and who practice responsible decision making with regards to studying and homework, do better academically (Zins & Elias, 2007). Finally, some evidence suggests that SEL programs may play a role in executive functioning. For example, the impact of affect on the prefrontal cortex area of

the brain, and its impact on inhibitory control, planning, and set shifting has been examined (e.g., Greenberg, 2006).

## **1.5 Core Competencies of SEL**

**1.5.1 CASEL Five Core Competencies.** CASEL adapted Goleman's conceptualization of key SEL clusters, and expanded the application of these clusters to school settings (Lopes et al., 2012), to outline five core SEL competencies. These include: self-management, or the ability to regulate and express one's emotions appropriately, control impulses, overcome obstacles, and to monitor progress towards a goal; self-awareness, or the ability to understand and empathize with others, to recognize the impact of emotions on behaviour, and to recognize one's own strengths and weaknesses; social awareness, the ability to understand and empathize with other's from diverse social and cultural backgrounds, to understand norms for behaviour and to take advantage of resources and supports in one's family, school and community; relationship/social skills, or the ability to maintain healthy relationships by communicating, cooperating, resisting inappropriate influences, negotiating conflict and seeking and offering help when needed; and responsible decision making, the ability to make decisions about behaviour and social interactions that are ethical, safe, in line with social norms, with realistic evaluations of consequences and the well-being of self and others (Collaborative for Academic Social and Emotional Learning, 2013). These five core competencies represent the goals of many SEL programs. Development of these competencies in students is thought to provide a foundation for longer-term goals of positive adjustment, and success in academic settings and interpersonal relationships (Durlak et al., 2011). Research supports the effectiveness of SEL programs across each of the 5 core competencies identified by CASEL (2013), as reviewed below.

**1.5.2 Self-Awareness.** Self-awareness is related to academic success; students are aware early on whether they are good at academic tasks relative to their peers (Marsh, Ellis, & Craven, 2002). Liew, McTigue, Barrois, and Hughes (2008) found that self-perceived academic competencies in Grade 1 were positively correlated with performance on reading and mathematics tasks. This relationship is thought to be bidirectional; students who feel competent at school are more likely to seek out opportunities to challenge themselves, which in turn increases their perception of their own competence (Zafiropoulou, Sotiriou, & Mitsioui, 2007). Self-esteem and self-competence can serve a protective factor. For example, Borman and Overman (2004) found that students from lower socioeconomic and minority backgrounds with higher self-esteem showed better outcomes in mathematics than students from a similar background with lower self-esteem.

**1.5.3 Self-Management.** Self-management has been found to be related to school adjustment and academic achievement (Bierman, Torres, Domitrovich, Welsh, & Gest, 2009; Howse, Calkins, Anastopoulos, Keane, & Shelton, 2003; McClelland et al., 2007). Students without the ability to regulate their emotions will have difficulty focusing on learning and on engaging positively in the classroom (Denham & Brown, 2010). Emotion regulation evaluated in preschool predicted later school adjustment and academic success (Graziano, Reavis, Keane, & Calkins, 2007; Shields et al., 2001). Emotion regulation was also found to be related to attentional regulation (Trentacosta & Izard, 2007), an important skill for success in school.

**1.5.4 Social Awareness.** Social awareness has been linked to academic success. Emotions act as signals that help individuals understand and navigate social interactions (Dodge, Laird, Lochman, & Zelli, 2002). The inability to read these signals can result in making the school environment overwhelming (Raver, Garner, & Smith-Donald, 2007). For example, a lack

of social awareness (e.g., emotional knowledge) has been linked to increased risk of aggression (Denham, Blair, Schmidt, & DeMulder, 2002). Izard and colleagues (e.g., Izard et al., 2001; Schultz, Izard, Ackerman, & Youngstrom, 2001) found that emotional knowledge at age 5 predicted social and academic competence, both concurrently and at age 9. Denham et al. (2009) found that social awareness in preschool is related to indices of academic success in kindergarten and found evidence for a pathway of this effect via self-regulation, emotional expressiveness, and social skills.

**1.5.5 Responsible Decision Making.** The ability to make responsible decisions, or social problem solving and goal setting, has been linked to pre-academic classroom adjustment and early academic functioning (Denham & Brown, 2010). Children's emotional and behavioural responses to hypothetical peer dilemmas were found to be related to assessments of school adjustment and academic progress, even when age, gender, and previous ratings of school adjustment were held constant (Bierman et al., 2008; Denham, Way, Kalb, Warren-Khot, & Bassett, 2013). Bierman et al. (2008) showed that the appropriateness of preschoolers behavioural choices were related to end of year vocabulary and literacy measures. Research has also demonstrated that learning prosocial problem solutions is related to academic success (Greenberg, Kusché, & Riggs, 2001; Youngstrom et al., 2000).

**1.5.6 Relationship Skills.** Relationship skills have been found to impact school adjustment through their impact on peer acceptance. Specifically, higher levels of social cognition (i.e., student's ability to reason about the social world and be sensitive to other's emotions) and prosocial behaviours (i.e., being helpful, cooperative, sympathetic, and sensitive), are related to higher ratings of peer acceptance (Deković & Gerris, 1994). Children with poor social skills and peer relationships are at higher risk for dropping out of school (Denham et al.,

2012). Students who report more positive and supportive relationships with their teachers also tend to be more motivated and engaged academically (Ryan & Patrick, 2001) and to earn higher grades (Osterman, 2000). Normandeau and Guay (1998) demonstrated that prosocial behaviours, one component of relationship skills, in Kindergarten predicted cognitive self-control, which in turn predicted achievement in Grade 1. Elias and Haynes (2008) evaluated cooperation, self-control, and assertion at the beginning of Grade 3, as well as changes in these skills, and demonstrated that both predicted reading and mathematics scores at the end of the year. Caprara, Barbaranelli, Pastorelli, Bandura, and Zimbardo (2000) found that self, peer, and teacher rated prosocial behaviour (i.e., cooperation, sharing, and helping) in Grade 3 predicted grades five years later, even when previous academic achievement was controlled for.

## **1.6 SEL Programs**

Evidence supports the use of SEL programs to target each of the five core competencies outlined by CASEL. However, not all SEL programs are equally effective and the selection of SEL programs is an important consideration for educators. In 2003, CASEL released a comprehensive review of SEL programs available. This review was conducted again in 2013 and identified 23 CASEL “SElect” programs (Collaborative for Academic Social and Emotional Learning, 2013). In order to be considered a CASEL SElect program certain criteria needed to be met. First, programs needed to be well-designed and classroom-based, meaning all five core competencies were targeted, opportunities for practice were provided, and a multi-year plan was used. Second, they had to have repeated opportunities for practice skills, both within the program and in real-life situations, for example, by following the “SAFE” procedures in order to support the generalization of skills. SAFE procedures include using a *sequenced* approach and *active* forms of learning, *focusing* specifically on skill development, and *explicitly* defining the social-

emotional skills targeted (Durlak et al., 2011). Third, both initial and ongoing training and support was required in order to ensure high-quality implementation. Finally, these programs needed to be evidence based, with a minimum of one evaluation that documented positive outcomes on behaviour and/or academic performance as compared with a comparison group (Collaborative for Academic Social and Emotional Learning, 2013). Additional reviews of research suggest that effective SEL programs must be developmentally and culturally appropriate (Durlak et al., 2011), include a manual that specifies the components of the program and its underlying conceptual model (Diekstra & Gravesteyn, 2008), and must be monitored on an ongoing basis (Humphrey, Lendrum, & Wigelsworth, 2010).

An additional consideration for programs that are designed to change behaviours is the generalization of skills beyond the context in which they are learned. As discussed previously, SEL skills involve the ability to regulate emotions. The application of strategies learned in the classroom to emotionally charged situations is a challenging component of SEL programs. Some authors suggest that when SEL skills are taught in meaningful, real-life situations, their generalization beyond the immediate context of the SEL program is facilitated (e.g., Raimundo, Marques-Pinto, & Lima, 2013). Strategies for enhancing generalization of behaviours include: taking advantage of naturally occurring social contingencies, for example classroom management strategies such as positive reinforcement; training as diversely as possible, for example across multiple settings, and using varied examples from common settings or routine classroom activities (W. H. Brown & Odom, 1994; Stokes & Osnes, 1986). Research has demonstrated that teachers need to prompt and praise positive social behaviours before social contingencies become established and that those behaviours that are encouraged must be ones that will elicit positive social interactions (W. H. Brown & Odom, 1994). For example,

Tremblay, Strain, Hendrickson, and Shores (1981) demonstrated that sharing, complimenting, and helping reliably lead to positive social interactions.

## **1.7 Evidence for SEL Programs**

Many SEL programs have been demonstrated to be effective for specific outcomes including bullying, substance abuse, delinquency, violence, mental health, and character development (Elbertson et al., 2010). SEL programs also exist that target SEL competencies more broadly, and evidence shows that these programs can have positive effects on mental health, self-efficacy, sense of community, academic performance, attitude toward school, coping, absenteeism, and aggression (e.g., Catalano, Berglund, Ryan, Lonczak, & Hawkins, 2002; Durlak et al., 2011; Durlak & Wells, 1997; Gottfredson & Wilson, 2003; Tobler et al., 2000; Zins, 2004).

**1.7.1 Meta-Analyses.** Durlak and colleagues (2011) conducted the first meta-analysis synthesis of research evaluating the impact of SEL programs for students in Kindergarten through High School across a range of SEL outcomes. This review examined the impact of SEL programming on social-emotional skills, attitudes toward self and others, positive social behaviour, conduct problems, emotional distress, and academic performance. Universal programs (i.e., for the entire student population) were included, while programs that targeted students with preexisting behavioural, emotional, or academic problems, were excluded. Additional exclusionary criteria were programs that targeted academic achievement or health outcomes (e.g., drug use prevention) primarily, as well as those that took place in small groups, outside of regular classrooms, or after school.

Based on a literature search for relevant studies conducted before 2007, Durlak and colleagues identified 213 studies, which involved 270,034 students. The student outcomes were

examined in a variety of ways, including self, parent, or teacher ratings, independent observations, school record reviews, or structured tasks (i.e., interviews, role plays, or questionnaires). Programs were also evaluated based on “SAFE” procedures (i.e., sequenced, active, focused and explicit). The results of this review showed that SEL programs do indeed positively impact all six outcomes measured; positive and significant effect sizes were found across all outcomes, ranging from 0.22 to 0.57. The largest effect size seen was for social-emotional skill performance (mean ES = 0.57). Although very few studies (i.e., only 15% or 33 studies) collected long-term data, those that did revealed reduced, though statistically significant, gains at follow-up 6 months later. Fewer significant outcomes were observed when non-school staff (e.g., university researchers, outside consultants) implemented programs, as compared to when teachers and other school staff were involved. Specifically, gains in academic performance were only seen when school personnel implemented the program. Programs that had multiple components (i.e., not just within the classroom) were no more effective than those that were solely based in the classroom. SAFE practices and implementation integrity or fidelity (i.e., the degree to which a program is implemented as intended by its developers; Gresham & Gansle, 1993) were found to moderate positive student outcomes. Specifically, programs that met criteria for all four SAFE procedures were significantly effective across all six outcomes, while those that did not were only significant on three outcomes (i.e., attitudes, conduct problems, and academic performance). In addition, programs that reported implementation problems, showed significant effects on two outcomes, while those that did not, showed significant effects on all six outcomes. Based on this review, Durlak and colleagues concluded that the evidence supports the positive impacts of SEL programming for a range of outcomes. They further suggested that

future research should focus on the factors that promote or hinder effective delivery of SEL programs (Durlak et al., 2011).

Payton and colleagues (2008) reviewed 317 studies of SEL programs in schools for students in Kindergarten through Grade 8. In addition to the universal programs review by Durlak and colleagues, this review included programs that targeted students who were displaying early signs of behavioural or emotional problems (i.e., indicated programs), and programs that took place outside of regular school hours. As in the review by Durlak and colleagues, results indicated that SEL programs positively impacted social-emotional skills, and that programs based on SAFE practices were most effective. Mean effect sizes for universal school-based programs were similar to those found by Durlak and colleagues and ranged from .23 to .60. Mean effect sizes for indicated programs were slightly higher and ranged from .38 to .77. Mean effect sizes for after-school programs ranged from .08 to .91. In addition, SEL programming was found to increase achievement test scores by 11 to 17 percentile points on average. Follow-up data revealed that long-term effects were found (i.e., not immediately after the program was implemented), though as in the review by Durlak et al. (2011), they were smaller.

**1.7.2 Randomized Controlled Trial.** In a randomized controlled trial that was not included in the previously discussed meta-analyses, the Social and Character Development Research Consortium (2010) evaluated the impact of seven universal, school-based SEL programs which were implemented with one cohort of between 6,200 and 6,600 students over 3 years. Each program was evaluated across 10 to 14 schools, with half of these schools randomly assigned to act as comparison schools. Ratings were made by students, parents, teachers, and principals, and the outcomes measured were social-emotional competence, behaviour, academics, and perceptions of school climate. Results of the analysis of the programs both

altogether and individually revealed no statistically significant improvements on the outcomes measured. The authors of this study identified several factors that may have impeded the effectiveness of the programs evaluated. For example, a relationship was found between low fidelity of program implementation and detrimental program effects. However, there was little evidence of a relationship between high fidelity and beneficial effects. Another factor noted, which might explain the lack of significant effects, was that comparison schools had voluntarily participated, and that some were situated in states where SEL was either required or promoted by legislation, implying a greater interest or presence of SEL initiatives in these schools than would be typical. Results from teacher surveys revealed that the “no treatment” control was actually a “standard practice” control, as most (86-90%) teachers reported using some SEL activities, though not full programs, throughout the study phase.

In contrast to the findings of the meta-analyses discussed previously, this randomized controlled trial’s findings do not support the use of SEL programs to improve social-emotional skills or increase positive behaviours. It is unclear whether these findings are due to the limitations of this study’s design, are an accurate depiction of the impact of these SEL programs, and/or can be generalized to all SEL programs. In either case, the discrepancy between findings suggests that investigations of the effectiveness of SEL programs should continue.

### **1.8 Limitations of Research**

Results of research on SEL programs, while not entirely positive, generally support their use (e.g., Social and Character Development Research Consortium, 2010). In addition, this research has several limitations. First, there are only a limited number of large-scale evaluations of these programs and evaluations with longitudinal data. Most evaluations of SEL programs have not included training or implementation data, despite evidence that suggests that the

effectiveness of a program is dependent on the fidelity with which that program is implemented (Reyes, Brackett, Rivers, Elbertson, & Salovey, 2012). In addition, research has demonstrated that teachers tend to overestimate their level of implementation (Sanetti & Kratochwill, 2009), and fidelity measures are often completed by the teachers implementing the program. Reyes and colleagues (2012) examined the impact of several factors on SEL programming including the amount of teacher training, the number of lessons received by students, the fidelity of implementation, and teacher attitudes and delivery style. They found that although these factors did not independently predict outcomes, their interactions did. For example, the impact of attendance at training sessions was moderated by fidelity of implementation such that more training sessions led to better outcomes on social problem solving and emotional literacy measures, but only when fidelity of implementation was moderate to high among program deliverers. This relationship was also found between fidelity of implementation and the number of program sessions; outcomes improved with more sessions if fidelity was at least moderate (Reyes et al., 2012).

Many SEL programs allow for adaptation rather than are designed to be implemented in a standardized fashion (Dusenbury, Brannigan, Falco, & Hansen, 2003). The availability of resources, time, or the match between a program and community values may require that programs be adapted. Those programs that cannot be adapted may be more likely to be discontinued or may not be implemented at all (Dusenbury et al., 2003). However, programs are often evaluated as a whole package, meaning that core or essential components are not identified. Thus, it is hard to conclude which aspects of the program, if any, are responsible for reported effects. In order for programs to be conducive to adaptation, key elements of the programs must be researched and clearly delineated in program manuals (Dusenbury et al., 2003).

The attitudes and characteristics of the individuals implementing SEL programs may influence evaluations or the effectiveness of that program (Raimundo et al., 2013). For example, J. L. Brown, Jones, LaRusso, and Aber (2010) found that teachers' perceptions of their own emotional abilities were related to their ability to promote positive social interactions in their classrooms. Further, a reliance on teacher ratings of student behaviour has also been cited as a major limitation of this research (Elias & Haynes, 2008). Although teacher ratings are generally considered the best source of ratings for students' social behaviour (Merrell, Buchanan, & Tran, 2006), teachers may introduce positive or negative biases into ratings of student characteristics or behaviours. This is particularly important given that teachers are often both delivering the programs and rating the students' behaviours.

According to Schonert-Reichl and colleagues (2009), one of the key areas missing in SEL research is a consensus on how and what should be measured. SEL skills are measured in a variety of ways including observations, scenario-based measures, interviews, and, most commonly, rating scales (Denham & Brown, 2010). Across studies, different rating scales are used. Not all those used may be sensitive enough to capture small changes in behaviours (Durlak et al., 2011; Schonert-Reichl et al., 2009). In addition, because there is no consensus on the definition of SEL, studies often measure some aspects of SEL but not all. These limitations in the operationalization and assessment of SEL skills call into question comparisons made across studies.

### **1.9 Play Is The Way**

Overall, most research generally supports the use of SEL programs, but this research is not conclusive and has several limitations. In addition, generalizing behavioural changes and maintaining those changes over time, is a challenge for most SEL programs. As discussed

previously, several strategies have been proposed to enhance generalization of behaviours including taking advantage of classroom management strategies such as positive reinforcement; training across multiple settings, and using varied examples from common settings or routine classroom activities (W. H. Brown & Odom, 1994; Stokes & Osnes, 1986). Play Is the Way is play based, cross-curricular program for teaching social-emotional learning (McCaskill, 2011). The manual includes references to the CASEL five core competencies. The following five core program values, Life Raft Key Concepts, guide social-emotional instruction during the games sessions: treat others as you would like to be treated, be brave – participate to progress, do your best no matter who you play with, have reasons for what you do and say, and recognize that it takes strength to be sensible (McCaskill, 2011). The stated objectives of this program are to create a safe learning environment where students can be independent, self-regulating and self-motivated learners; to develop a sense of character and social emotional competencies in students; and to foster empathy and consideration in students (McCaskill, 2011).

**1.9.1 Evidence for Play Is The Way.** According to the program developers, Play Is the Way uses games to develop patterns of behaviour and make them habitual, to foster teamwork and cooperation, to create a common language, and to engage and encourage the regulation of emotions in a setting that mirrors real-life (McCaskill, 2011). The only examination of Play Is The Way to date was conducted by Street, Hoppe, Kingsbury, and Ma (2004). This study used a sample of children age 9 to 12 years old, across 3 classrooms in an elementary school in Western Australia. Ninety children were included in a pretest-post-test comparison group design in which two classrooms took part in Play Is The Way while the comparison classroom received additional physical education classes. One of the implementing classrooms was facilitated by the program developer, while the other was facilitated by the school principal. The participating

classrooms took part in 60 minute games sessions, once every two weeks, from January to April 2002. The comparison group received 60 minutes of physical education at the same time as games sessions were being conducted. Parent and teacher ratings of prosocial behaviour were examined using two measures; the Pro-Social Behaviour Questionnaire (PRQ; Weir & Duveen, 1981; Weir, Stevenson, & Graham, 1980), a measure of interpersonal and social behaviour, on which parents and teachers rate students on 20 items using a three point scale, and the Revised Rutter Parent/Teacher Pro-Social Behaviour Sub-Scale for School-Age Children (Rutter, 1967; Rutter, Tizard, & Whitmore, 1970), a measure of pro-social behaviour with 10 to 20 items on a three point scale. Short-term test-retest reliability for the PBQ is high (.91) and inter-rater reliability is moderate (.66). No psychometric information was available for the Revised Rutter scales though previous versions were demonstrated to have adequate reliability. A statistically significant difference was found in both parent and teacher ratings of prosocial behaviours at school, but not in parent ratings of prosocial behaviours at home. A significant change was detected on the PBQ both within groups and between groups over time. Specifically, both experimental groups showed a significant improvement in social behaviour and the control group showed a significant reduction. On the Rutter scale, no significant differences were found within groups, but the same pattern of change was observed between groups over time. These authors concluded that this study provides evidence for the benefits of the program, but that further research is needed to replicate and expand upon these findings.

Overall, the evidence for Play Is The Way suffers from several limitations including a large number of missing data from the parent report ratings at the second data collection point, absence of ratings by independent observers, and the lack of consideration for the nested structure of the data in the analysis. Although the evidence shows some indication of a positive

impact on social behaviour and problem behaviour, further evidence is needed to support the use of Play Is The Way for the promotion of SEL.

### **1.10 Current Study**

The current study aims to address the limitations of previous research in several ways. The study design and method of data analysis, specifically a mixed effects analysis of variance, attempted to account for the nesting of students in classrooms. Furthermore, a standardized measure was used to collect data on student behaviour and the measure of social-responsibility was one that is already used in the school and supports common definitions of SEL (i.e., CASEL).

**1.10.1 Purpose of the Study.** The purpose of the current study is to provide an evaluation of a play-based SEL program, Play Is The Way, which was implemented in one school for a pilot study. An additional purpose is to expand the research literature examining the effectiveness of SEL programming, specifically play-based interventions. The following research questions were addressed:

1. What is the Effect of Play Is The Way on Teacher Ratings of Problems Behaviours and Social Responsibility?
2. To What Extent is The Effect of Play Is The Way on Teacher Ratings of Problem Behaviour Moderated by Student Characteristics?

## **Chapter 2: Method**

One elementary school that had exposure to Play Is The Way in the 2011-2012 school year, in conjunction with a Play Is The Way program trainer, approached the student investigator and her research supervisors for assistance conducting an evaluation of the program's effectiveness. This study is an analysis of extant data collected by the school during the program's implementation. Measures include those commonly collected by the school as well as additional measures recommended by the research team. A non-randomized design with a comparison group was used. The data analyses accounted for the clustering of students in classrooms through the use of a mixed effects analysis of variance (ANOVA).

### **2.1 Participants and Settings**

Participants were 79 students randomly selected from within 10 Kindergarten through Grade 7 classrooms during the 2012-2013 school-year from one elementary school in British Columbia. Teachers self-selected their classrooms to be in either the implementing or comparison group. Five classrooms were part of the implementing group and included a Kindergarten classroom, a Grade 1/2 classroom, a Grade 4/5 classroom, a Grade 5/6 classroom, and a Grade 6/7 classroom. Five classrooms were also part of the comparison group and included a grade 1/2 classroom, a Grade 3 classroom, a Grade 4/5 classroom, a Grade 5/6 classroom, and a Grade 6/7 classroom.

Enrolment in the school was 238 students and 45.4% of students were female. The percent of students identified as English Language Learners was 1.7%. The percent of students who were identified as having health challenges, learning, developmental or behaviour disabilities was 4.6%, and 1.3% were identified as gifted. Based on Grade 4 and 7 provincial

exams (i.e., the Foundational Skills Assessment) from the 2012-2013 school year, at least 92% of students were meeting or exceeding expectations in reading, writing, and numeracy.

**2.1.1 Power Analysis.** A power analysis was conducted using Raudenbush and colleagues' (2011) Optimal Design Plus program. The intraclass correlation coefficient (ICC), which represents the proportion of total variance that is attributable to differences between groups (Snyder, Vuchinich, Acock, Washburn, & Flay, 2012), was estimated based on the default values of the program. Given a sample size of between 6 and 8 participants in 10 classrooms, an estimated ICC of between .05 and .10, a medium effect size of .40, an alpha level of .05, the power of this study will be between .2 and .3. Therefore, there is a 20 to 30% chance of detecting a medium effect at the 5% significance level given the parameters of this study. Given this level of power, effect size was considered more so than statistical significance in evaluating program effects.

## **2.2 Measures**

**2.2.1 Behavior Assessment Scale for Children-Second Edition.** The BASC-2 is a comprehensive set of rating scales that evaluates the behaviours and emotions of children and adolescents across multiple dimensions. It is a standardized, norm-referenced behaviour rating scale used to assess for individual age 2 to 25 to assess behaviour in relation to a normative sample. For each composite, scores are reported as T-Scores, a type of standard score that has a mean of 50 and standard deviation of 10. Of the available scales on the BASC-2, the following composites were analyzed: the Externalizing Composite, which assesses disruptive, aggressive, and rule-violating behaviour; the Internalizing Composite, which assesses anxiety, depression, and somatization; and the Adaptive Skills Composite, which assesses adaptability, social skills, study skills, leadership and functional communication. Higher scores on the Externalizing and

Internalizing composites indicate problem behaviour and higher scores on the Adaptive composite indicate prosocial or positive behaviour (Reynolds & Kamphaus, 2004). Reliability evidence for the BASC-2 is very good including high internal consistency (alpha coefficients ranging from mid .80s to .90s), high test-retest reliabilities (ranging from .81 to .93), and adequate inter-rater reliabilities (ranging from .53 to .65). In addition, validity evidence shows that the BASC-2 correlates highly with widely used measures of behaviour (e.g., the Achenbach System of Empirically Based Assessment; Reynolds & Kamphaus, 2004).

**2.2.2 Social Responsibility Quick Scale.** The BC performance standards for Social Responsibility have been summarized in the Social Responsibility Quick Scales (British Columbia Ministry of Education, 2001). These scales are used in BC schools and provide a common language and set of expectations regarding social responsibility in students Kindergarten through Grade 10 (British Columbia Ministry of Education, 2001). The framework for the SR Quick Scale was developed through two years of research that involved reviewing national and international documents, curriculum, and policy, as well as consulting with teachers, administrators, parents, and students. Evidence was gathered to develop materials using direct observations in natural and designed settings, student products, and student reflections and self-report. Expectations are arranged in four categories: a) contributing to the classroom and school community; b) solving problems in peaceful ways; c) valuing diversity and defending human rights; d) exercising democratic rights and responsibilities. Rating scales are available for Grades K to 3, 4 to 5, 6 to 8, and 8 to 10. The standards are currently used to monitor school improvement and assess the progress of individual students (British Columbia Ministry of Education, 2001) and as a way for teachers to report on student behaviour, attitudes, work habits, and efforts. Performance levels are rated on a four-point scale and were 1 (*not yet with*

*expectations*), 2 (*meets expectations*), 3 (*fully meets expectations*), and 4 (*exceeds expectations*). Ratings from the four categories were summed to create a composite score for each student. Psychometric evidence for the SRQS reveals strong internal consistency with alpha coefficients of .93 and a high level of consistency among items with inter-item correlations ranging from .76 to .79 and corrected item-total correlations ranging from .83 to .85 (Ty, 2013). Evidence for construct validity came from comparisons between ratings on the SRQS and office discipline referral and suspension data which both revealed statistically significant negative correlations (i.e., -.38 and -.26). Content validity evidence, based on a survey of expert raters, revealed high levels of agreement. Finally, a principal component analysis of the factor structure of the SRQS revealed that the items load on a single factor (Ty, 2013), supporting the use of a single composite score in the current study.

## **2.3 Procedure**

**2.3.1 Recruitment.** The school had received training in Play Is The Way in the 2011-2012 school year. The school agreed to implement the program according to the criteria of this study in exchange for training in the program for the 2012-2013 school year. The student investigator and her research supervisors were asked to assist in the evaluation of the effectiveness of Play Is The Way. Recommendations were provided regarding study design including, random assignment of classrooms to the implementing or comparison group, random selection of students within classrooms, delayed implementation of program for the comparison group, the use of the BASC and SQ Quick Scale to assess change in student behaviour, and the use of fidelity measures to assess program implementation. The school agreed to random selection of students and delayed implementation of comparison classrooms. However, they declined random assignment of classrooms; teachers self-selected their classrooms to be in either

the implementing or comparison group. The five comparison classrooms agreed to a delayed implementation procedure where they would implement the program beginning in January. In addition, the school did not collect fidelity information. Teachers from the school received a 1-day professional development workshop run by a Play Is The Way trainer. The program trainer provided ongoing support throughout program implementation.

All students in participating classrooms took part in the program and parents were informed of the program's occurrence by the school prior to the research team's involvement. Teachers used the random sequence to select 8 students from their class rosters for whom measures would be completed. Participants are those students who were randomly selected. Parents of participants were informed via passive consent; letters were sent home by the school with an option to refuse their child's participation in the research study. Four parents declined their child's participation and those data were thus excluded from the study. Both rating scales (i.e., Social Responsibility Quick Scale and BASC-2) were completed for the same group of students in September, 2012 and January, 2013. Analysis took place in the fall of 2014.

**2.3.2 Data Collection.** All rating scales were collected by a school administrator. This administrator anonymized the forms by assigning a code. Anonymized measures were then passed on to the student investigator. Demographic information was obtained from the school district website.

The BASC-2 was completed for a random sample of between 6 and 8 students in each classroom in September 2012 (pretest) and January 2013 (post-test). The SR quick scales were completed for a random sample of between 6 and 8 students in each classroom in September 2012 (pretest) and January 2013 (post-test).

**2.3.3 Intervention.** Play Is the Way is designed to be implemented in 20 minute game sessions 3-4 times per week across the elementary school years. Instructions are provided on how to prepare for implementation, recommended language, a suggested timetable, and recommendations for how games facilitators are to run sessions (e.g., acknowledge effort, let students work through emotional discomfort, ask questions rather than give answers). This program is designed so that the cooperation and inclusion of all players is essential for success. There are a total of 120 games sessions. The five core program values (Life Raft Concepts) are introduced over the first 40 games sessions, approximately every two weeks or eight sessions. Throughout the remaining games sessions, these key concepts are practiced and reinforced. Sessions begin with an explanation of the goals and objectives of the game. Games are repeated until the class reaches a level of proficiency acceptable to the teacher. Each attempt is followed by a discussion that encourages students to think critically about how their actions helped or hindered the success of the game. Students are encouraged to reflect upon concepts or values that arose during the session. Teachers are recommended to acknowledge positive behaviour through specific positive praise statements. They are encouraged to adapt Play Is The Way to suit the needs of the classroom by modifying games or moving through the program at their own pace, so long as the focus remains on encouraging students to think about and discuss situations that arise. The content of the game sessions is summarized in Table 2.1.

Table 2.1

*Play Is The Way Life Raft Key Concepts and Session Content*

Life Raft Key Concept	Example Discussion Questions	Goals
Treat Others As You Would Like Them To Treat You	<ul style="list-style-type: none"> <li>• How does sticking to this rule make classrooms safe and strong?</li> </ul>	<ul style="list-style-type: none"> <li>• Self-management               <ul style="list-style-type: none"> <li>○ Building positive relationships</li> <li>○ Ways to communicate and cooperate</li> </ul> </li> </ul>

Life Raft Key Concept	Example Discussion Questions	Goals
Treat Others As You Would Like Them To Treat You	<ul style="list-style-type: none"> <li>• What do you think is hard about sticking to this rule?</li> <li>• What virtues and skills do you need to genuinely understand someone who is different from you?</li> </ul>	<ul style="list-style-type: none"> <li>• Building positive relationships               <ul style="list-style-type: none"> <li>○ Maintaining self-understanding</li> <li>○ Self-understanding</li> <li>○ Communication</li> </ul> </li> <li>• Personal Identity               <ul style="list-style-type: none"> <li>○ Recognising attributes of self and others</li> </ul> </li> </ul>
Be Brave – Participate To Progress	<ul style="list-style-type: none"> <li>• What do we mean when we say a classroom is safe classroom?</li> <li>• Everyone has the right to come to school and learn, Name all the fears that people experience which prevent them from getting the most out of school.</li> <li>• Fear has many disguises. Discuss the many ways people behave to hide their fears.</li> </ul>	<ul style="list-style-type: none"> <li>• Personal Development               <ul style="list-style-type: none"> <li>○ Self-acceptance</li> <li>○ Self-understanding</li> </ul> </li> <li>• Influences on identity               <ul style="list-style-type: none"> <li>○ Self-understanding</li> </ul> </li> <li>• Personal Identity               <ul style="list-style-type: none"> <li>○ Attributes of self</li> </ul> </li> <li>• Building Relationships</li> </ul>
Pursue Your Personal Best No Matter Who You Work With	<ul style="list-style-type: none"> <li>• How will learning to get the best out of yourself, no matter who you work with prepare you for whatever lies ahead in your life?</li> <li>• Having better skills that someone else does not mean you're a better person than them. What is the difference between your character and your abilities?</li> </ul>	<ul style="list-style-type: none"> <li>• Positive Relationships</li> <li>• Personal Development               <ul style="list-style-type: none"> <li>○ Self-understanding</li> </ul> </li> <li>• Accepting and Celebrating Relationships</li> <li>• Resilience               <ul style="list-style-type: none"> <li>○ Encouraging respect</li> </ul> </li> <li>• Building Relationships</li> </ul>
Have Reasons For The Things You Say And Do	<ul style="list-style-type: none"> <li>• Why does thinking before we say and do things keep us and those around us safe?</li> <li>• Why is it difficult to trust someone who doesn't think before they say and do things?</li> <li>• How does having reasons for the things you say and do make it easier to:               <ul style="list-style-type: none"> <li>○ Work with others</li> <li>○ Be understood</li> <li>○ Be trusted</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• Positive Behaviours               <ul style="list-style-type: none"> <li>○ Recognizing strength and limitations</li> </ul> </li> <li>• Accepting Relationships               <ul style="list-style-type: none"> <li>○ School and community</li> </ul> </li> <li>• Positive Relationships               <ul style="list-style-type: none"> <li>○ Working cohesively</li> </ul> </li> <li>• Resilience               <ul style="list-style-type: none"> <li>○ Rights and responsibilities</li> <li>○ Safe and happy schools</li> </ul> </li> <li>• Building Relationships</li> </ul>
It Takes Great Strength To Be Sensible	<ul style="list-style-type: none"> <li>• Why is it important to learn to be your own boss with the strength to do what you know is right?</li> <li>• There are many people who think it's tough to the wrong thing, upset people, and make their class/school/community unsafe. Why are they wrong? What is their behaviour really saying about them?</li> <li>• Have the strength to be sensible lets people trust you. Name the various ways you are trusted by others.</li> </ul>	<ul style="list-style-type: none"> <li>• Resilience               <ul style="list-style-type: none"> <li>○ Self-control</li> </ul> </li> <li>• Building Positive Relationships</li> <li>• Personal Identity               <ul style="list-style-type: none"> <li>○ Recognizing attributes of self and others</li> </ul> </li> <li>• Positive Relationships</li> </ul>

## 2.4 Design and Analysis

A multilevel model was selected to deal with the nested structure of data and allows analysis of data where the assumption of the independence of observations is violated. In this study, students within the same classroom are likely to be more similar to each other than students across classrooms, and thus violate the assumption of independence of observations. This model allows simultaneous estimation of individual and classroom level effects and thus accounts for variance at different levels of the hierarchical structure.

The baseline equivalency of groups was examined using univariate ANOVA. Groups were compared based on treatment group assignment, grade level, and gender for each of the dependent variables, and their interactions. These analyses revealed differences between groups (classrooms) before the program was implemented on all variables measured, as well as significant interactions between factors. Given this finding, all analyses were run using change scores, or the difference in teacher ratings from before the program was implemented to after, as the dependent variable. The effect of the intervention was examined using a mixed effects analysis of variance to determine the effect of the intervention in implementing and comparison classrooms. The dependent variables were change scores of teacher ratings of student problem behaviour (BASC-2 scores) for each of the three BASC-2 composites (Externalizing, Internalizing, Adaptive), and changes scores of teacher ratings of social responsibility (SR Quick Scales). The predictor was whether or not the student received the intervention (PITW). A random intercept was included at the classroom level to account for nesting of students in classrooms. Gender and grade (lower versus upper elementary), as well as their interaction terms with the treatment predictor and each other were included (i.e., Gender x PITW, Grade x PITW, Gender x Grade, Gender x Grade x PITW) to determine whether grade or gender significantly

predicted changes in outcome variables. Preliminary analyses were run to check the basic assumptions of mixed effects ANOVAs. To determine the practical significance of differences found, effect sizes were calculated based on Feingold's (2009) recommendation for independent-groups pre-post-test designs. Effect sizes were calculated by subtracting the marginal mean for the implementing group (or subsection of that group), divided by the standard deviation for that group, from the marginal means for the comparison group (or subsection of that group), divided by the baseline standard deviation for that group. When either grade or gender was found to be a significant predictor, effect sizes were calculated separately for the levels of the predictor (i.e., upper versus lower elementary, male versus female).

**2.4.1 Testing Basic Assumptions of Mixed Effects ANOVA.** The assumptions of normality and homoscedasticity (constant variance) of residuals were assessed by plotting the residuals of the change scores for each outcome variable. Normality was assessed by examining probability plots (P-P plots) of the residuals for evidence of skewed (positive or negative), or non-diagonal, distribution. Constant variance was assessed by examining residuals for evidence of differences in dispersion across level 1 and 2 of each of the predictors.

## Chapter 3: Results

This chapter presents results examining the effects of PITW on student's behaviour and social responsibility. Results are reported separately for each of the outcome variables. During the program's implementation, one student moved out of the district. Three additional students were missing either or both the BASC-2 and SR Quick Scale at post-test data collection. Descriptive and statistical analyses are reported to answer the research questions. In addition, effect sizes were calculated to measure the magnitude of the treatment effect for outcome variables from pretest to post-test. For the purpose of this study, level of significance (alpha) was set at  $p < .05$ . A effect size of .20 was defined as small, .50 as medium, and .80 as large (Cohen, 1969). The following research questions are addressed in this chapter:

1. What is the Effect of Play Is The Way on Teacher Ratings of Problems Behaviours and Social Responsibility? Specific Hypothesis: It was anticipated that a greater reduction in ratings of problem behaviour and a greater increase in ratings of social responsibility would occur in implementing classrooms, as compared to comparison classrooms.
2. To What Extent is The Effect of Play Is The Way on Teacher Ratings of Problem Behaviour Moderated by Student Characteristics? Specific Hypothesis: It was anticipated that there would be no significant main effect of grade or gender, or an interaction between gender or grade and teacher ratings of problem behaviour or social responsibility.

### 3.1 Baseline Equivalency ANOVAs

Descriptive statistics for baseline measures are reported in Table 3.1. Four univariate ANOVAs were conducted in order to determine the baseline equivalency of groups across each factor (treatment group, gender, and grade) as well as their interactions (Table 3.2).

Table 3.1

*Descriptive Statistics*

Condition	Group (N)	Outcome Variables			
		Externalizing M (SD)	Internalizing M (SD)	Adaptive Skills M (SD)	SRQS M (SD)
Treatment	Male				
	Lower (N = 12)	47.08 (6.91)	41.75 (4.16)	51.92 (10.72)	11.00 (3.46)
	Upper (N = 11)	58.45 (13.09)	56.36 (9.77)	39.27 (7.72)	9.64 (2.34)
	Total (N = 23)	52.52 (11.64)	48.74 (10.38)	45.87 (11.24)	10.35 (2.99)
	Female				
	Lower (N = 4)	43.00 (2.45)	38.75 (2.87)	55.00 (14.54)	11.25 (2.87)
	Upper (N = 11)	47.00 (4.31)	53.09 (12.93)	50.00 (6.10)	11.08 (2.23)
	Total (N = 15)	45.93 (4.23)	49.27 (12.82)	51.33 (8.78)	11.13 (2.31)
	Male and Female				
	Lower (N = 16)	46.06 (6.29)	41.00 (4.02)	52.69 (11.34)	11.06 (3.23)
Upper (N = 22)	52.73 (11.17)	54.73 (11.31)	44.64 (8.73)	10.39 (2.35)	
Total (N = 38)	49.92 (9.90)	48.95 (11.24)	48.03 (10.56)	10.67 (2.73)	
Comparison	Male				
	Lower (N = 8)	45.00 (5.10)	45.13 (7.08)	51.75 (8.99)	11.75 (1.28)
	Upper (N = 15)	44.87 (3.70)	42.07 (3.49)	51.20 (7.87)	12.13 (1.73)
	Total (N = 23)	44.91 (4.12)	43.13 (5.09)	51.39 (8.07)	12.00 (1.57)
	Female				
	Lower (N = 7)	44.14 (3.53)	41.29 (2.21)	54.86 (6.28)	12.29 (1.50)
	Upper (N = 7)	43.43 (2.15)	47.29 (8.98)	50.43 (10.03)	12.29 (0.95)
	Total (N = 14)	43.79 (2.83)	44.29 (7.01)	52.64 (8.36)	12.29 (1.20)
	Male and Female				
	Lower (N = 15)	44.60 (4.31)	43.33 (5.58)	53.20 (7.74)	12.00 (1.36)
Upper (N = 22)	44.41 (3.30)	43.73 (6.11)	50.95 (8.38)	12.18 (1.50)	
Total (N = 37)	44.49 (3.69)	43.57 (5.82)	51.86 (8.09)	12.11 (1.43)	
Combined	Male				
	Lower (N = 20)	46.25 (6.19)	43.10 (5.60)	51.85 (9.82)	11.30 (2.77)
	Upper (N = 26)	50.62 (11.10)	48.12 (9.84)	46.15 (9.73)	11.08 (2.33)
	Total (N = 46)	48.72 (9.45)	45.93 (8.57)	48.63 (10.07)	11.17 (2.51)
	Female				
	Lower (N = 11)	43.73 (3.10)	40.36 (2.66)	54.91 (9.33)	11.91 (2.02)
	Upper (N = 18)	45.61 (3.97)	50.83 (11.63)	50.17 (7.58)	11.53 (1.93)
	Total (N = 29)	44.90 (3.73)	46.86 (10.56)	51.97 (8.45)	11.67 (1.94)
	Male and Female				
	Lower (N = 31)	45.35 (5.38)	42.13 (4.90)	52.94 (9.61)	11.52 (2.51)
Upper (N = 44)	48.57 (9.17)	49.23 (10.57)	47.80 (9.04)	11.27 (2.16)	
Total (N = 75)	47.24 (7.94)	46.29 (9.33)	49.92 (9.56)	11.37 (2.30)	

Table 3.2

*Tests of Baseline Equivalency*

Predictors	Outcome Variables							
	Externalizing		Internalizing		Adaptive Skills		SRQS	
	<i>F</i> (1,67)	<i>p</i>	<i>F</i> (1,67)	<i>p</i>	<i>F</i> (1,67)	<i>p</i>	<i>F</i> (1,68)	<i>p</i>
Treatment Group	3216.00*	0.00	3.51	0.07	1.91	0.17	1.16	0.29
Gender	7.57*	0.01	0.42	0.52	3.42	0.07	0.27	0.61
Grade	7.35*	0.01	17.71*	0.00	6.72*	0.01	0.21	0.65
Treatment*Gender	4.87*	0.03	1.02	0.32	1.73	0.19	0.75	0.39
Treatment*Grade	4.05	0.05	11.78*	0.00	2.11	0.15	0.14	0.71
Gender*Grade	6.08*	0.02	1.34	0.25	0.19	0.67	0.51	0.48
Treatment*Gender*Grade	1.46	0.23	1.52	0.22	1.74	0.19	1.16	0.29

Significant main effects for treatment, gender, and grade, were found on pretest measures of externalizing behaviour ( $F(1,67) = 7.57, p < .05$ ;  $F(1,67) = 7.35, p < .05$ ;  $F(1,67) = 4.88, p < .05$ ; see Table 3.2). A significant interaction for treatment and gender was found ( $F(1,67) = 4.05, p < .05$ ). Visual inspection of this interaction revealed that males were rated higher in the treatment group, compared to females, at baseline (Figure 3.1). Ratings of males and females were similar in the comparison group. A significant interaction for treatment and grade was also found ( $F(1,67) = 6.081, p < .05$ ). Visual inspection of this interaction revealed that upper grades were rated higher in the treatment group, and ratings were similar between upper and lower grades in the comparison group, at baseline (Figure 3.2). Interactions between all three factors (treatment group, gender, grade) were non-significant.

Figure 3.1

*Baseline Means for Externalizing by Gender*

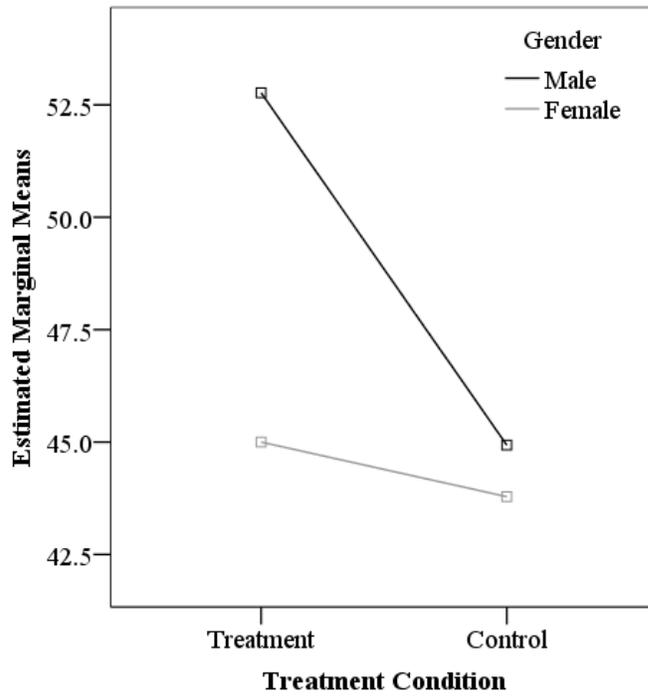
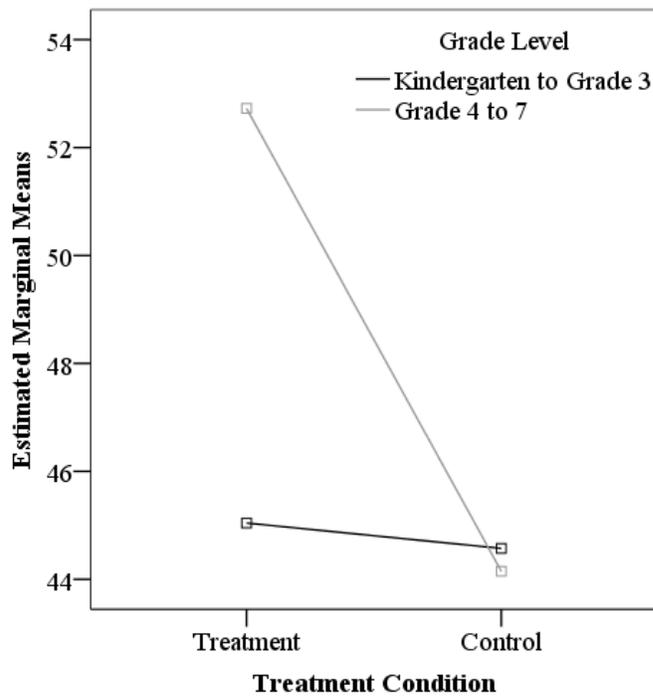


Figure 3.2

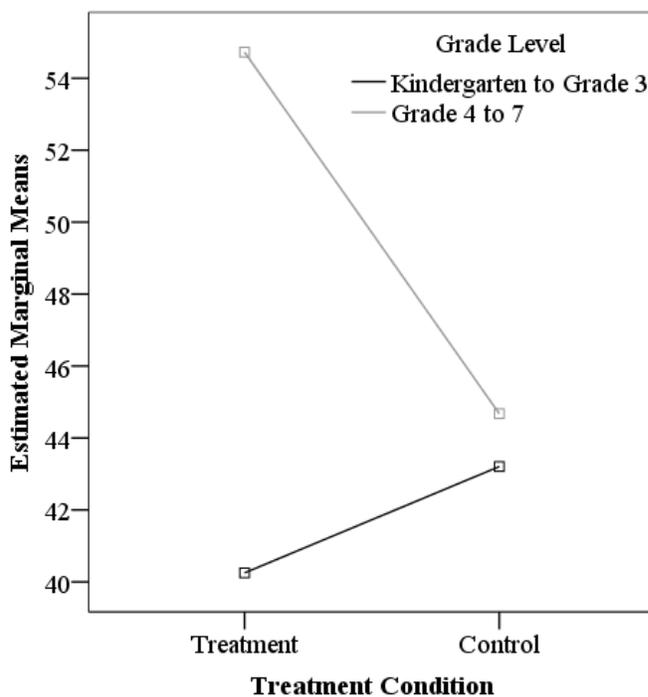
*Baseline Means for Externalizing by Grade*



A significant main effect was found for grade on pretest measures of internalizing behaviours ( $F(1,67) = 17.71, p < .05$ ). A significant interaction was found between treatment group and grade level ( $F(1,67) = 11.78, p < .05$ ). Visual inspection of this interaction revealed that upper grades were rated higher in the treatment group, and ratings were similar between upper and lower grades in the comparison group, at baseline (Figure 3.3).

Figure 3.3

*Baseline Means for Internalizing by Grade*



Significant main effects were found for grade on pretest measures of adaptive skills ( $F(1,68) = 6.72, p < .05$ ). Significant main effects were found for treatment group on the SQRS variable ( $F(1,67) = 6.140, p < .05$ ). There were no significant interaction effects found for either the adaptive skills variable or SRQS variable.

### 3.2 Mixed Effects ANOVAs

To answer the research questions a mixed effects analysis of variance (ANOVA) was used to determine the effect of the intervention across the outcome variables with gender and

grade included as factors. *F* tests for all effects and dependent variables are displayed in Table 3.3. Covariance parameters for random effects are displayed in Table 3.4. Variances for the classroom-level random intercept that equal to zero indicate no correlation between ratings within classrooms. In this case, the model would reduce to a single level model. Variances for the classroom-level random intercept greater than zero indicated the presence of correlations among ratings within classrooms and therefore, the importance of considering the nested structure of the data. Effect sizes were calculated for all significant interactions found in the mixed effects analysis of variance and are displayed in Table 3.5. The following section presents the results of this analysis.

Table 3.3

*Type III Tests of Fixed Effects*

Predictors	Outcome Variables							
	Externalizing		Internalizing		Adaptive Skills		SRQS	
	<i>F</i> (1,67)	<i>p</i>	<i>F</i> (1,67)	<i>p</i>	<i>F</i> (1,67)	<i>p</i>	<i>F</i> (1,68)	<i>p</i>
Treatment Group	.47	.49	.00	.97	.14	.72	11.84*	.00
Gender	5.15*	.03	1.39	.24	.14	.72	11.84*	.00
Grade	1.76	.19	1.45	.25	3.02	.11	3.19	.08
Treatment*Gender	6.50*	.01	1.05	.31	.89	.35	.14	.71
Treatment*Grade	6.09*	.02	9.60*	.01	2.63	.13	.98	.33
Gender*Grade	1.25	.27	.01	.91	3.23	.08	.34	.56
Treatment*Gender*Grade	2.02	.16	.06	.81	3.02	.09	.59	.45

Table 3.4

*Variances for Random Intercept and Residuals.*

Parameter	Outcome Variables			
	Externalizing	Internalizing	Adaptive Skills	SRQS
	Variance	Variance	Variance	Variance
Intercept (Classroom)	.00	1.34	2.77	.00
Residual	37.86	24.25	26.42	3.53

Table 3.5

*Effect Sizes*

Group	Outcome Variables			
	Externalizing <i>d</i>	Internalizing <i>d</i>	Adaptive Skills <i>d</i>	SRQS <i>d</i>
Male	-.48	--	--	--
Female	.68	--	--	--
Upper Elementary	-.65	-.51	--	--
Lower Elementary	.49	1.01	--	--
Overall Treatment	--	--	.00	.61

**3.2.1 Assumptions of Normality and Homoscedasticity.** Examination of P-P plots of change score residuals for each outcome variable revealed generally normal distributions. Examinations of residuals across levels of each predictor revealed differences in dispersion across treatment group, gender and grade, as well as the presence of possible outliers.

**3.2.2 Outlier Analysis.** Given the identification of potential outliers the data were winsorized to determine their impact on the analysis. Outliers were selected by identifying cases with residuals that fell more than three standard deviations from the mean of the residuals. Outliers were winsorized by replacing the change score corresponding to the residual with the next non-outlier value closer to the mean of the change score. The mixed effects analysis of variance was rerun and effect sizes were calculated using the winsorized data. Resulting effect sizes did not differ substantially from the non-winsorized effect sizes calculated. Effect size calculations were conducted on the non-winsorized data set, with the potential outliers included.

**3.2.3 Externalizing Behaviours.** No statistically significant differences were found between implementing and comparison classrooms on the externalizing outcome variable. No statistically significant effects were found when grade was included as a predictor. A statistically significant effect was found when gender was included ( $F(1,75) = 5.151, p < .05$ ). A statistically significant interaction was found between the treatment variable and gender ( $F(1,75) = 6.50, p$

<.05), and between the treatment variable and grade ( $F(1,75) = 6.09, p <.05$ ). Effect sizes were calculated separately for males and females, and for upper and lower grades, based on these significant interactions between gender and treatment variable, and between grade level and the treatment variable. Figure 3.4 displays mean change scores on the externalizing outcome variable by gender. Male students in the implementing group experienced a reduction in externalizing behaviours, and female students experienced an increase. In the comparison group this pattern was reversed, with male students experiencing an increase in externalizing behaviours and female students experiencing a reduction. A medium negative effect size ( $d = -.48$ ) was found for males on the externalizing variable. The effect size for females was medium and positive ( $d = .68$ ). Figure 3.5 displays mean change scores on the externalizing outcome variable by grade. Upper elementary students in the implementing group experienced a reduction in externalizing behaviours, and lower elementary students experienced an increase. In the comparison group this pattern was reversed, with upper elementary students experiencing an increase in externalizing behaviours and lower elementary students experiencing a reduction. A medium negative effect size was also found for upper grades on the externalizing variable ( $d = -.65$ ). The effect size for lower grades was medium and positive ( $d = .49$ ). No significant interactions were found between gender and grade, or between treatment group, gender, and grade.

Figure 3.4

*Mean Change Scores by Gender on the Externalizing Outcome Variable*

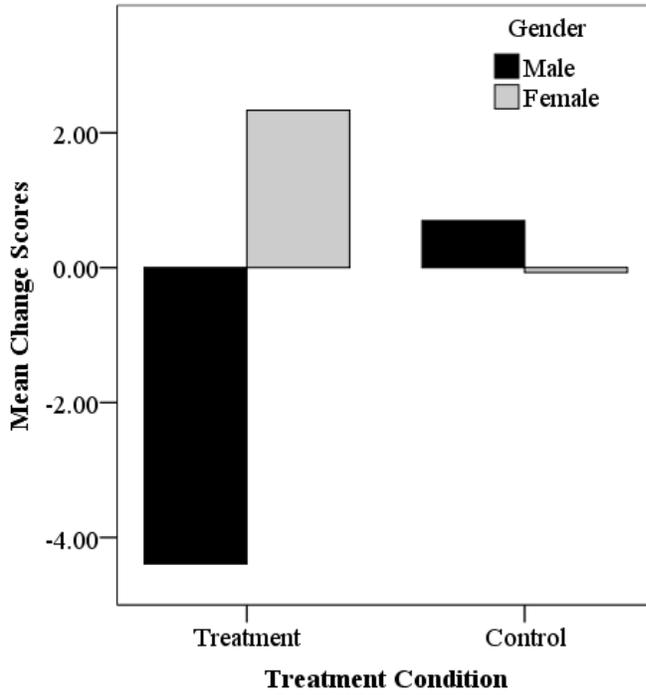
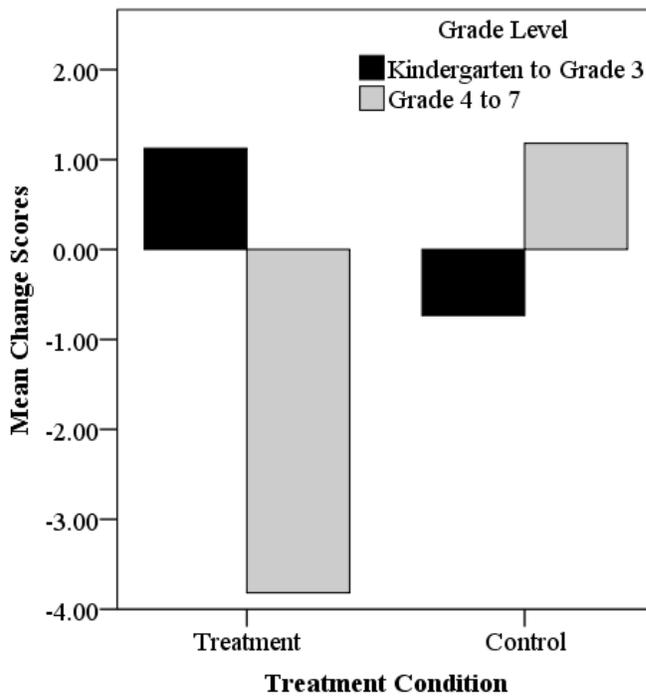


Figure 3.5

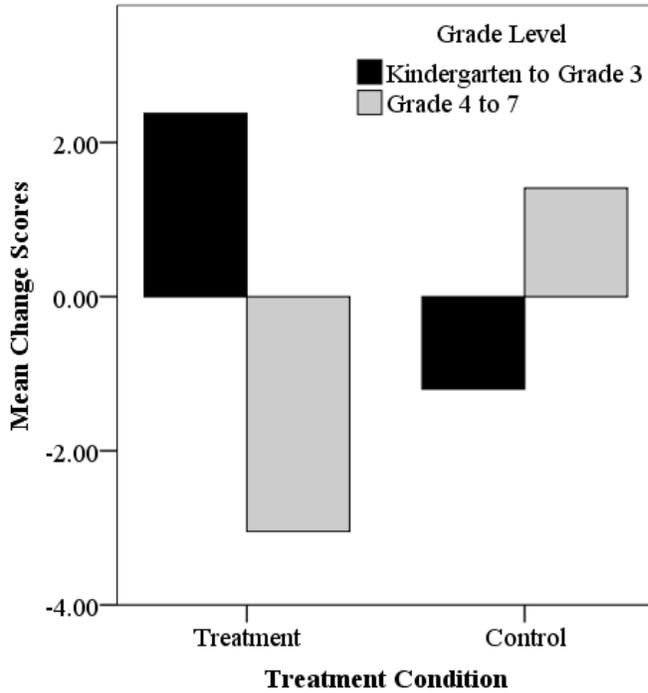
*Mean Change Scores by Grade on the Externalizing Outcome Variable*



**3.2.4 Internalizing Behaviours.** No statistically significant differences were found between implementing and comparison classrooms on the internalizing outcome variable. No statistically significant differences were found when grade or gender were included as predictors. A statistically significant interaction was found between the treatment variable and grade ( $F(1,75) = 9.60, p < .05$ ). Effect sizes were calculated separately for upper and lower grades based on the significant interaction between grade level and the treatment variable. Figure 3.6 displays mean change scores on the internalizing outcome variable by grade. Upper elementary students in the implementing group experienced a reduction in internalizing behaviours, and lower elementary students experienced an increase. In the comparison group this pattern was reversed, with upper elementary students experiencing an increase in internalizing behaviours and lower elementary students experiencing a reduction. A medium negative effect size ( $d = -.51$ ) was found for upper grades on the internalizing variable. The effect size for lower grades was large and positive ( $d = 1.01$ ). No significant interactions were found between the treatment variable and gender, between gender and grade, or between treatment group, gender, and grade.

Figure 3.6

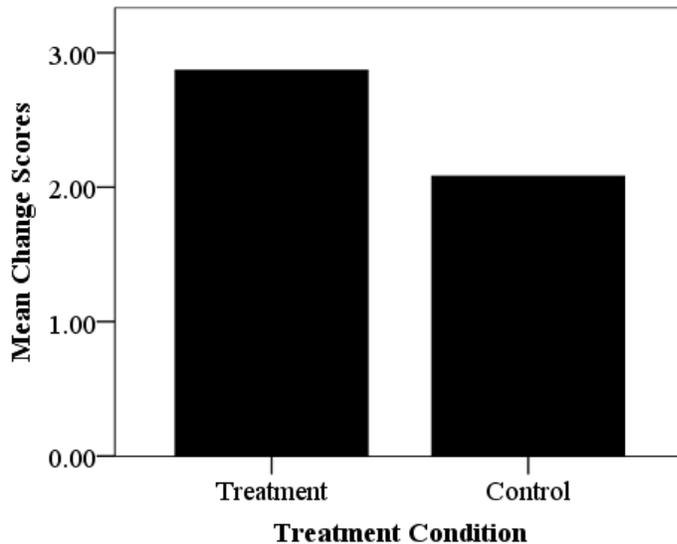
*Mean Change Scores by Grade on the Internalizing Outcome Variable.*



**3.2.5 Adaptive Skills.** No statistically significant differences were found between implementing and comparison classrooms on the adaptive skills outcome variable. No statistically significant differences were found when grade and gender were included as predictors. No statistically significant interactions were found between the treatment variable and gender, between the treatment variable and grade, between gender and grade, or between treatment group, gender, and grade. Figure 3.7 displays mean change scores on the adaptive skills outcome variable by treatment group. Both the implementing and comparison groups experienced an increase in adaptive skills. No significant effect was found for the adaptive skills outcome variable ( $d = .00$ ).

Figure 3.7

*Mean Change Scores by Treatment Group on the Adaptive Skills Outcome Variable.*

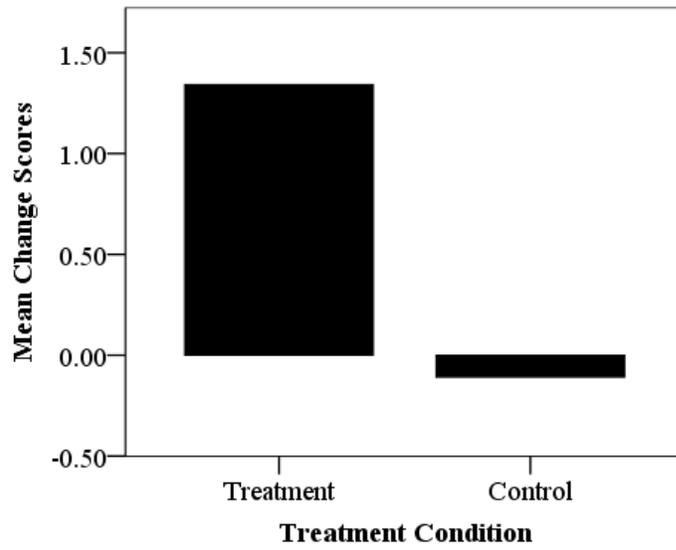


**3.2.6 Social Responsibility.** A statistically significant difference was found between implementing and comparison classrooms on the social responsibility outcome variable ( $F(1,75) = 11.84, p < .05$ ). No statistically significant differences were found when grade and gender were included as predictors. No significant interactions were found between the treatment variable and gender or grade, between gender and grade, or between treatment group, gender, and grade.

Figure 3.8 displays mean change scores on the social responsibility outcome variable by treatment group. The implementing group experienced an increase in social responsibility, and the comparison group experienced a decrease. A medium positive effect size was found for the social responsibility outcome variable ( $d = .61$ ).

Figure 3.8

*Mean Change Scores by Treatment Group on the Social Responsibility Outcome Variable.*



## **Chapter 4: Discussion**

The purpose of the current study was to provide an evaluation of a play-based SEL program, Play Is The Way. This chapter discusses the main findings of this study, the limitations, and the implications for practice and future research.

### **4.1 Baseline Differences**

Groups were found to differ significantly at baseline. Specifically, groups were found to differ by treatment group, gender, and grade, on the externalizing outcome variable, and by grade on the internalizing, adaptive skills, and SRQS outcome variables. In addition, on the externalizing variable a significant interaction was found between treatment and gender, and between treatment and grade, such that male students, as well as students in upper grades, were rated higher in the treatment group. Ratings were similar between males and females, as well as upper and lower grades, in the comparison group. A significant interaction between treatment and grade was also found on the internalizing variable such that students in upper grades were rated higher in the treatment group, and ratings were similar between upper and lower grades in the comparison group. No significant interactions were found on the adaptive skills or SRQS outcome variables.

### **4.2 Main Findings**

**4.2.1 Externalizing Behaviours.** Results are discussed in terms of change scores, or the difference in teacher ratings of externalizing behaviours from before the program was implemented to after. A statistically significant interaction between the treatment variable and gender was found on the externalizing outcome variable. That is, the change in externalizing behaviours was different for male versus female students in implementing and comparison classrooms. Effect sizes indicated that male students in implementing classrooms demonstrated

medium reductions in externalizing behaviours, when compared to male students in comparison classrooms who demonstrated a slight increase in externalizing behaviours. Effect sizes also indicated that female students in implementing classrooms demonstrated medium increases in externalizing behaviours, when compared to female students in comparison classrooms who demonstrated a slight reduction in externalizing behaviours.

A statistically significant interaction between the treatment variable and grade was also found on the externalizing outcome variable. That is, the change in externalizing behaviours was different for upper elementary versus lower elementary students in implementing and comparison classrooms. Effect sizes indicated that upper elementary students in implementing classrooms demonstrated medium reductions in externalizing behaviours, when compared to upper elementary students in comparison classrooms who demonstrated a slight increase in externalizing behaviours. Effect sizes also indicated that lower elementary students in implementing classrooms demonstrated medium increases in externalizing behaviours, when compared to lower elementary students in comparison classrooms who demonstrated a slight reduction in externalizing behaviours.

The results suggest that male students and students in upper elementary grades demonstrated a reduction in externalizing behaviours. However, these results also suggest that female and lower elementary students demonstrated an increase in externalizing behaviours. Effect sizes were similar for the reported reductions and increases in externalizing behaviours. Overall, this pattern of results does not support the proposed hypothesis that PITW leads to a reduction in externalizing behaviour in elementary students.

**4.2.2 Internalizing Behaviours.** Results are discussed in terms of change scores, or the difference in teacher ratings of internalizing behaviours from before the program was

implemented to after. A statistically significant interaction between the treatment variable and grade was found on the internalizing outcome variable. That is, the change in internalizing behaviours was different across students in upper grades versus students in lower grades in implementing and comparison classrooms. Effect sizes indicated that upper elementary students in implementing classrooms demonstrated medium reductions in internalizing behaviours, when compared to upper elementary students in comparison classrooms who demonstrated a slight increase in internalizing behaviours. Effect sizes also indicated that lower elementary students in implementing classrooms demonstrated large increases in internalizing behaviours, when compared to lower elementary students in comparison classrooms who demonstrated a slight reduction in internalizing behaviours.

The results suggest that students in upper elementary grades demonstrated a reduction in internalizing behaviours. However, these results also suggest that lower elementary students demonstrated an increase in internalizing behaviours. Effect sizes were similar for the reported reductions and increases in externalizing behaviours. Overall, this pattern of results does not support the proposed hypothesis that PITW leads to a reduction in internalizing behaviour in elementary students.

**4.2.3 Adaptive Skills.** Results are discussed in terms of change scores, or the difference in teacher ratings of adaptive skills from before the program was implemented to after. There were no significant interactions found between the treatment variable and either gender or grade, on the adaptive skills outcome variable. That is, male and female, and lower and upper elementary, students in implementing and comparison did not differ significantly in changes in adaptive skills. The effect size suggests no change in adaptive skills in implementing classrooms, compared to comparison classrooms. Overall, this pattern of results does not support the

proposed hypothesis that PITW leads to an increase in adaptive behaviour in elementary students.

**4.2.4 Social Responsibility.** Results are discussed in terms of change scores, or the difference in teacher ratings of social responsibility from before the program was implemented to after. A statistically significant difference was found between implementing and comparison classrooms on the social responsibility outcome variable. There were no significant interactions found between the treatment variable and either gender or grade, on the social responsibility outcome variable. That is, while implementing and comparison classrooms differed significantly in changes in social responsibility, male and female, and lower and upper elementary, students in implementing and comparison did not differ significantly. The effect size suggests a medium increase in social responsibility in implementing classrooms, compared to comparison classrooms.

**4.2.5 Summary of Main Findings.** A greater reduction in ratings of problem behaviour and a greater increase in ratings of social responsibility was anticipated in implementing classrooms, as compared to comparison classrooms. The results of this study indicate that overall treatment effects were found for the social responsibility outcome variable, but were not found for the externalizing, internalizing, or adaptive skills outcome variables. That is, students in implementing groups overall demonstrated significant gains in social responsibility, compared to their peers in comparison classrooms, but did not demonstrate significant reductions in problem behaviour or increases in adaptive skills responsibility, compared to their peers in comparison classrooms. Several differences were found between groups when gender and grade were included as predictors. Specifically, significant interactions were found on the externalizing outcome variable, between treatment group and gender, and on both the externalizing and

internalizing outcome variables, between treatment group and grade. Effect sizes for the treatment group were calculated and indicated medium reductions in externalizing behaviours for upper elementary students and for male students; medium reductions in internalizing behaviours for upper elementary; and medium increases in social responsibility in the treatment group overall. However, effect sizes also indicated medium increases in externalizing behaviours for female and upper elementary students, and large increases in internalizing behaviours for lower elementary students. The effect of PITW on student behaviour must be considered in light of the positive and negative effects that were found in the current study. Although reductions in problem behaviour were found in some groups, the findings of increases in problem behaviour in other groups cannot be ignored.

Several explanations for these results are possible. First, the pattern of results from baseline to posttest are consistent with the statistical phenomenon regression to the mean, which is known to occur when repeated measurements are made on the same subject (Barnett, van der Pols, & Dobson, 2005). Specifically, in repeated measurement data, relatively high or low observations tend to less extreme (i.e., nearer to the true mean) when measured subsequently (Barnett et al., 2005). In the current study, scores that fell above the mean at baseline on the BASC-2 tended to be lower at the second measurement point. In contrast, scores that were below the mean at baseline, tended to have increased at posttest. Given this pattern, it is possible that the results found in the current study are, at least in part, a result of regression to the mean, rather than a true change in behaviour or an effect of the program.

A second explanation is that this program, or some aspect of how it was implemented, may have had differential effectiveness across genders and grade level. If the results reflect an actual change in behaviour, it is important to note that lower elementary students and female

students appeared to experience negative outcomes as a result of PITW. It is possible that PITW is more suitable for upper elementary students. According to Denham and Brown's (2010) model of SEL, emotional regulation and arousal are key concepts in younger children, relative to older children. Therefore, the instruction targeting SEL skills included in PITW may have been developmentally inappropriate for younger students.

### **4.3 Limitations**

Several limitations of the current study are worth noting. First, classrooms were not randomly assigned to treatment condition. Teachers were asked to volunteer to be assigned to the implementing group. Therefore, there may have been selection effects in that teachers who self-selected to implement the program may have been more invested in the program than those who did not volunteer. Research suggests that the attitudes and characteristics of the individuals implementing SEL programs may influence evaluations or the effectiveness of those programs (Raimundo et al., 2013). As a result, selection effects, as well as other unmeasured teacher characteristics, may have influenced the results of the current study. In addition, differences between treatment groups, and by gender and grade level, were found in baseline measures of outcome variables. These differences were accounted for in the study through the use of change scores, rather than outcome measures, as the dependent variable. However, changes found over the implementation period may have been due to some other factor or characteristic of these groups that was not assessed in the current study.

A second limitation is that all measures were completed by classroom teachers who were also the individuals implementing the program (or not implementing in the comparison classrooms). Teacher ratings of behaviour change may have been influenced by teachers' perceptions of the program or their awareness of the evaluation. A reliance on teacher ratings of

student behaviour has also been cited as a major limitation of SEL research (Elias & Haynes, 2008). Although teacher ratings are generally considered the best source of ratings for students' social behaviour (Merrell et al., 2006), teachers may introduce positive or negative biases into ratings of student characteristics or behaviours.

A third limitation is that fidelity information was not available, and the extent to which the program was implemented is unknown. Research has demonstrated the amount of teacher training, the number of lessons received by students, the fidelity of implementation, and teacher attitudes and delivery style, interact to predict outcomes in SEL programming (Reyes et al., 2012). In addition, information was unavailable about which components of this program were implemented and to what extent. As a result, it is hard to conclude which aspects of the program, if any, are responsible for the reported effects in this study. Finally, this study took place in a school district where social responsibility is a curricular goal. As a result, changes in student behaviour may have been a result of the general curriculum, rather than Play Is The Way.

A fourth limitation of this study is that ratings on the BASC-2 were generally within the average normative range indicating that the majority of the study sample did not have significant challenges in the areas of externalizing, internalizing, and adaptive skills. This measure may not have been sensitive enough to small changes in student behaviour. This type of restricted data range increases the possibility of a type II error. It is possible that the intervention may have been found to yield significant effects if there had been a greater range of scores on the variables in the sample.

No information was collected on the generalizability of behavioural changes beyond the context in which the program was implemented. Therefore, no conclusions can be made about how well changes in student behaviour generalized to other contexts. In addition, there was no

follow-up phase to the study. Therefore, any change in student behaviour may have been temporary or declined over time. Alternatively, change in student behaviour may have occurred after the post-test data were collected.

Finally, according to Schonert-Reichl and colleagues (2009), one of the key areas missing in SEL research is a consensus on how and what should be measured. The measured used in the current study were not developed to specifically match the goals of Play Is The Way. As a result, changes in student behaviour may have occurred as a result of program implementation, but that were not measured in the current study.

#### **4.4 Implications for Future Research and Practice**

Future research should be conducted in which classrooms are randomized, outcomes are rated by independent raters, several types of data are collected (direct observation, self-report, parent ratings), and fidelity information is collected. In addition, future research should evaluate the long-term effects of the program, as well behaviour changes across different settings. The potential for differential effects of this program, across gender and grade, should also be examined in future research. This program may be more appropriate for male students and for students in upper elementary grades. The possibility that the lessons are not developmentally appropriate for younger students, and are more targeted towards male students, should be examined.

This study contributes to the current literature regarding social emotional learning programs and in particular, the use of these programs in the Canadian context. Overall, this study does not support the claim that Play Is The Way reduces externalizing and internalizing behaviours for elementary students overall, and provides some evidence for the claim that PITW increases social responsibility. However, positive results should be considered in light of the

negative results that were found in the current study, namely increases in problem behaviours in certain groups of students. In addition, several limitations make it difficult to draw firm conclusions about the effectiveness of this program and findings should be interpreted in light of these limitations. Despite these limitations, teachers and school administrators should continue to target social emotional development in schools and researchers should continue to investigate programs aimed at teaching these skills in schools.

## References

- Aronson, J. (2002). *Improving academic achievement: Impact of psychological factors on education*. New York: Academic Press.
- Baker, J. A. (1999). Teacher-student interaction in urban at-risk classrooms: Differential behavior, relationship quality, and student satisfaction with school. *The Elementary School Journal*, *100*(1), 57-70. doi: 10.2307/1002161
- Bandura, A. (1971). *Social learning theory*. New York, NY: General Learning Press.
- Barnett, A. G., van der Pols, J. C., & Dobson, A. J. (2005). Regression to the mean: What it is and how to deal with it. *International Journal of Epidemiology*, *34*(1), 215-220. doi: 10.1093/ije/dyh299
- Bierman, K. L., Domitrovich, C. E., Nix, R. L., Gest, S. D., Welsh, J. A., Greenberg, M. T., . . . Gill, S. (2008). Promoting academic and social-emotional school readiness: The Head Start REDI program. *Child Development*, *79*(6), 1802-1817. doi: 10.1111/j.1467-8624.2008.01227.x
- Bierman, K. L., Torres, M. M., Domitrovich, C. E., Welsh, J. A., & Gest, S. D. (2009). Behavioral and cognitive readiness for school: Cross-domain associations for children attending Head Start. *Social Development*, *18*(2), 305-323. doi: 10.1111/j.1467-9507.2008.00490.x
- Borman, G. D., & Overman, L. T. (2004). Academic resilience in mathematics among poor and minority students. *The Elementary School Journal*, *104*(3), 177-195. doi: 10.2307/3202948
- British Columbia Ministry of Education. (2001). *BC performance standards for social responsibility: A framework*. Province of British Columbia.

- Brown, J. L., Jones, S. M., LaRusso, M. D., & Aber, J. L. (2010). Improving classroom quality: Teacher influences and experimental impacts of the 4rs program. *Journal of Educational Psychology, 102*(1), 153-167. doi: 10.1037/a0018160
- Brown, W. H., & Odom, S. L. (1994). Strategies and tactics for promoting generalization and maintenance of young children's social behavior. *Research in Developmental Disabilities, 15*(2), 99-118.
- Caprara, G. V., Barbaranelli, C., Pastorelli, C., Bandura, A., & Zimbardo, P. G. (2000). Prosocial foundations of children's academic achievement. *Psychological Science, 11*(4), 302-306. doi: 10.2307/40063837
- Catalano, R. F., Berglund, M. L., Ryan, J. A. M., Lonczak, H. S., & Hawkins, J. D. (2002). Positive youth development in the United States: Research findings on evaluations of positive youth development programs. *Prevention & Treatment, 5*(1), 15. doi: 10.1037/1522-3736.5.1.515a
- Cauce, A. M., Felner, R. D., & Primavera, J. (1982). Social support in high-risk adolescents: Structural components and adaptive impact. *American Journal of Community Psychology, 10*(4), 417-428. doi: 10.1007/bf00893980
- Cohen, J. (1969). *Statistical Power Analysis for the Behavioral Sciences* (2nd ed.). Hillsdale, N.J.: Erlbaum Associates.
- Cohen, J. (2006). Social, emotional, ethical, and academic education: Creating a climate for learning, participation in democracy, and well-being. *Harvard Education Review, 76*(2), 201-237.

- Collaborative for Academic Social and Emotional Learning. (2013). *2013 CASEL guide: Effective social and emotional learning programs: preschool and elementary school edition*. Chicago, IL: CASEL.
- Dalton, H., Elias, M. J., & Wandersman, A. (2001). *Community psychology: Linking individuals and communities* (2nd ed.). Belmont, CA: Wadsworth.
- Deković, M., & Gerris, J. R. M. (1994). Developmental analysis of social cognitive and behavioral differences between popular and rejected children. *Journal of Applied Developmental Psychology, 15*(3), 367-386. doi: 10.1016/0193-3973(94)90038-8
- Denham, S. A., Bassett, H. H., Kalb, S. C., Mincic, M., Wyatt, T., Graling, K., & Warren, H. K. (2009). How preschoolers' social and emotional competence predicts their school-readiness: Development of competency based assessments. *Advances in SEL Research Newsletter, 3*, 11–13. doi: 10.1207/s15566935eed1701\_4
- Denham, S. A., Bassett, H. H., Mincic, M., Kalb, S., Way, E., Wyatt, T., & Segal, Y. (2012). Social-emotional learning profiles of preschoolers' early school success: A person-centered approach. *Learning and Individual Differences, 22*(2), 178-189. doi: 10.1016/j.lindif.2011.05.001
- Denham, S. A., Blair, K. A., Schmidt, M., & DeMulder, E. (2002). Compromised emotional competence: Seeds of violence sown early? *American Journal of Orthopsychiatry, 72*, 70-82. doi: 10.1037/0002-9432.72.1.70
- Denham, S. A., & Brown, C. (2010). “Plays nice with others”: Social–emotional learning and academic success. *Early Education & Development, 21*(5), 652-680. doi: 10.1080/10409289.2010.497450

- Denham, S. A., Way, E., Kalb, S. C., Warren-Khot, H. K., & Bassett, H. H. (2013). Preschoolers' social information processing and early school success: The challenging situations task. *British Journal of Developmental Psychology, 31*(2), 180-197. doi: 10.1111/j.2044-835X.2012.02085.x
- Diekstra, R. F., & Gravesteyn, C. (2008). Effectiveness of school-based social and emotional education programmes worldwide. *Social and Emotional Education: An International Analysis, 255-312*. Retrieved from [http://educacion.fundacionbotin.org/ficheros\\_descarga/pdf/EN/evaluation.pdf](http://educacion.fundacionbotin.org/ficheros_descarga/pdf/EN/evaluation.pdf)
- Dodge, K. A., Laird, R., Lochman, J. E., & Zelli, A. (2002). Multidimensional latent-construct analysis of children's social information processing patterns: Correlations with aggressive behavior problems. *Psychological Assessment, 14*, 60-73. doi: 10.1037/1040-3590.14.1.60
- Dubow, E. F., & Tisak, J. (1989). The Relation between stressful life events and adjustment in elementary school children: The role of social support and social problem-solving skills. *Child Development, 60*(6), 1412-1423. doi: 10.2307/1130931
- Durlak, J. A., Weissberg, R. P., Dymnicki, A. B., Taylor, R. D., & Schellinger, K. B. (2011). The impact of enhancing students' social and emotional learning: A meta-analysis of school-based universal interventions. *Child Development, 82*(1), 405-432. doi: 10.1111/j.1467-8624.2010.01564.x
- Durlak, J. A., & Wells, A. (1997). Primary prevention mental health programs for children and adolescents: A meta-analytic review. *American Journal of Community Psychology, 25*(2), 115-152. doi: 10.1023/a:1024654026646

- Dusenbury, L., Brannigan, R., Falco, M., & Hansen, W. B. (2003). A review of research on fidelity of implementation: Implications for drug abuse prevention in school settings. *Health Education Research: Theory & Practice, 18*(2), 237-256.
- Dusenbury, L., Zadrazil, J., Mart, A., & Weissburg, R. P. (2011). *State learning standards to advance social and emotional learning: The state scan of social and emotional learning standards, preschool through high school*. Chicago, IL: Collaborative for Academic, Social, and Emotional Learning.
- Dusenbury, L., Weissberg, R. P., Goren, P., & Domitrovich, C. E. (2014). *State standards to advance social and emotional learning: Findings from CASEL's state scan of social and emotional learning standards, preschool through high school, 2014*. Chicago, IL: Collaborative for Academic, Social, and Emotional Learning.
- Elbertson, N. A., Brackett, M. A., & Weissberg, R. P. (Eds.). (2010). *School-based social and emotional learning (SEL) programming: Current perspectives*. Netherlands: Springer.
- Elias, M. J., & Haynes, N. M. (2008). Social competence, social support, and academic achievement in minority, low-income, urban elementary school children. *School Psychology Quarterly, 23*(4), 474-495. doi: 10.1037/1045-3830.23.4.474
- Elias, M. J., Parker, S. J., & Kash, M. (2007). Social-emotional learning and character and moral education in children: Synergy of fundamental divergence in our schools? *Journal of Research in Character Education, 5*(2), 167-181.
- Elias, M. J., Zins, J. E., Weissburg, R. P., Frey, K. S., Greenberg, M. T., Haynes, N. M., . . . Shriver, T. P. (1997). *Promoting social and emotional learning guidelines for educators*. Virginia, USA: ASCD.

- Esposito, C. (1999). Learning in urban blight: School climate and its effect on the school performance of urban, minority, low-income children. *School Psychology Review*, 28(3), 365.
- Fantuzzo, J., Bulotsky-Shearer, R., McDermott, P., McWayne, C., & Frye, D. (2007). Investigation of dimensions of social-emotional classroom behavior and school readiness for low-income urban preschool children. *School Psychology Review*, 36(1), 44-62.
- Feingold, A. (2009). Effect Sizes for Growth-Modeling Analysis for Controlled Clinical Trials in the Same Metric as for Classical Analysis. *Psychological Methods*, 14(1), 43-53.
- Foster, S., Rollefson, M., Doksum, T., Noonan, D., Robinson, G., & Teich, J. (2005). *School mental health services in the United States, 2002–2003*. Rockville, MD.
- Goldschmidt, E. P. (2008). *The role of social competence in the relationship between classroom behaviors and school engagement*. Doctor of Philosophy Thesis, Lynch School of Education, Ann Arbor, MI.
- Goleman, D. (1995). *Emotional intelligence: Why it can matter more than IQ*. New York, NY: Bantam Books.
- Gonzales, N. A., Cauce, A. M., Friedman, R. J., & Mason, C. A. (1996). Family, peer, and neighborhood influences on academic achievement among African-American adolescents: One-year prospective effects. *American Journal of Community Psychology*, 24(3), 365-387. doi: 10.1007/bf02512027
- Gottfredson, D. C., & Wilson, D. B. (2003). Characteristics of effective school-based substance abuse prevention. *Prevention Science*, 4(1), 27-38. doi: 10.1023/a:1021782710278

- Graziano, P. A., Reavis, R. D., Keane, S. P., & Calkins, S. D. (2007). The role of emotion regulation in children's early academic success. *Journal of School Psychology, 45*(1), 3-19. doi: <http://dx.doi.org/10.1016/j.jsp.2006.09.002>
- Greenberg, M. T. (2006). Promoting resilience in children and youth. *Annals of the New York Academy of Sciences, 1094*(1), 139-150. doi: 10.1196/annals.1376.013
- Gresham, F. M., & Gansle, K. A. (1993). Treatment integrity of school-based behavioral intervention studies: 1980-1990. *School Psychology Review, 22*(2), 254.
- Hawkins, J. D., & Weis, J. G. (1985). The social development model: An integrated approach to delinquency prevention. *Journal of Primary Prevention, 6*(2), 73-97.
- Hirschi, T., & Gottfredson, M. (1990). Substantive positivism and the idea of crime. *Rationality and Society, 2*(4), 412-428.
- Howse, R. B., Calkins, S. D., Anastopoulos, A. D., Keane, S. P., & Shelton, T. L. (2003). Regulatory contributors to children's kindergarten achievement. *Early Education & Development, 14*(1), 101-120. doi: 10.1207/s15566935eed1401\_7
- Humphrey, N., Lendrum, A., & Wigelsworth, M. (2010). *Social and emotional aspects of learning (SEAL) programme in secondary schools: National evaluation (Research Report DFE-RB049)*. Nottingham, UK.
- Institute of Medicine. (1994). *Reducing risks for mental disorders: Frontiers for preventive intervention research*. Washington, DC: National Academies Press.
- Izard, C., Fine, S., Schultz, D., Mostow, A., Ackerman, B., & Youngstrom, E. (2001). Emotion knowledge as a predictor of social behavior and academic competence in children at risk. *Psychological Science, 12*, 18-23. doi: 10.1111/1467-9280.00304

- Kress, J. S., Norris, J. A., Schoenholz, D. A., Elias, M. J., & Seigle, P. (2004). Bringing together educational standards and social and emotional learning: Making the case for educators. *American Journal of Education, 111*(1), 68-89.
- Liew, J., McTigue, E. M., Barrois, L., & Hughes, J. N. (2008). Adaptive and effortful control and academic self-efficacy beliefs on achievement: A longitudinal study of 1st through 3rd graders. *Early Childhood Research Quarterly, 23*(4), 515-526. doi: <http://dx.doi.org/10.1016/j.ecresq.2008.07.003>
- Lopes, P. N., Mestre, J. M., Guil, R., Kremenitzer, J. P., & Salovey, P. (2012). The role of knowledge and skills for managing emotions in adaptation to school: Social behavior and misconduct in the classroom. *American Educational Research Journal, 49*(4), 710-742. doi: 10.3102/0002831212443077
- Marsh, H. W., Ellis, L. A., & Craven, R. G. (2002). How do preschool children feel about themselves? Unraveling measurement and multidimensional self-concept structure. *Developmental Psychology, 38*(3), 376-393. doi: 10.1037/0012-1649.38.3.376
- Mayer, J. D., & Salovey, P. (Eds.). (1997). *What is emotional intelligence*. New York, NY: Basic Books.
- McCaskill, W. (2011). *Play Is The Way: Volume 1*. Greenwood, Australia: Play Is The Way Ltd.
- McClelland, M. M., Cameron, C. E., Connor, C. M., Farris, C. L., Jewkes, A. M., & Morrison, F. J. (2007). Links between behavioral regulation and preschoolers' literacy, vocabulary, and math skills. *Developmental Psychology, 43*(4), 947-959. doi: 10.1037/0012-1649.43.4.947

- Merrell, K. W., Buchanan, R., & Tran, O. K. (2006). Relational aggression in children and adolescents: A review with implications for school settings. *Psychology in the Schools*, 43(3), 345-360. doi: 10.1002/pits.20145
- Normandeau, S., & Guay, F. (1998). Preschool behavior and first-grade school achievement: The mediational role of cognitive self-control. *Journal of Educational Psychology*, 90(1), 111-121. doi: 10.1037/0022-0663.90.1.111
- O'Dougherty Wright, M., & Masten, A. S. (2005). Resilience processes in development: Fostering positive adaptation in the context of adversity. In S. Goldstein & R. B. Brooks (Eds.), *Handbook of Resilience in Children* (pp. 17-37). US: Springer.
- Osterman, K. F. (2000). Students' need for belonging in the school community. *Review of Educational Research*, 70(3), 323-367. doi: 10.2307/1170786
- Payton, J., Weissburg, R. P., Durlak, J. A., Dymnicki, A. B., Taylor, R. D., Schellinger, K. B., & Pachan, M. (2008). *The positive impact of social and emotional learning for kindergarten to eighth-grade students: Findings from three scientific reviews*. Chicago, IL.
- Public Health Agency of Canada. (2006). *Healthy Settings for Young People in Canada*. Ottawa, Ontario: Public Health Agency of Canada.
- Raimundo, R., Marques-Pinto, A., & Lima, M. L. (2013). The effects of a social-emotional learning program on elementary school children: The role of pupils' characteristics. *Psychology in the Schools*, 50(2), 165-180. doi: 10.1002/pits.21667
- Raudenbush, S. W., Spybrook, J., Congdon, R., Liu, X., Martinez, A., Bloom, H., & Hill, C. (2011). *Optimal Design Plus Empirical Evidence (Version 3.0)*.
- Raver, C. C., Garner, P. W., & Smith-Donald, R. (2007). The roles of emotion regulation and emotion knowledge for children's academic readiness: Are the links causal? In R. C.

- Pianta, M. J. Cox & K. L. Snow (Eds.), *School readiness and the transition to kindergarten in the era of accountability* (pp. 121-147). Baltimore, MD, US: Paul H Brookes Publishing.
- Raver, C. C., & Knitzer, J. (2002). *Ready to enter: What research tells policymakers about strategies to promote social and emotional school readiness among three- and four-year-olds*. New York, NY: National Center for Children in Poverty.
- Reicher, H. (2010). Building inclusive education on social and emotional learning: challenges and perspectives – a review. *International Journal of Inclusive Education*, 14(3), 213-246. doi: 10.1080/13603110802504218
- Reyes, M. A., Brackett, M. A., Rivers, S. E., Elbertson, N. A., & Salovey, P. (2012). The interaction effects of program training, dosage, and implementation quality on targeted students: Outcomes for the RULER approach to social and emotional learning. *School Psychology Review*, 41(1), 82-99.
- Reynolds, C. R., & Kamphaus, R. W. (2004). *BASC-2: Behaviour assessment system for children, second edition manual*. Circle Pines, MN: American Guidance Service.
- Rose-Krasnor, L. (1997). The nature of social competence: A theoretical review. *Social Development*, 6, 111-135. doi: doi:10.1111/j.1467-9507.1997.tb00097.x
- Rutter, M. (1967). A children's behaviour questionnaire for completion by teachers: preliminary findings. *Journal of Child Psychology and Psychiatry*, 8(1), 1-11.
- Rutter, M., Tizard, J., & Whitmore, K. (Eds.). (1970). *Education, Health and Behaviour*. London: Longman.

- Ryan, A. M., & Patrick, H. (2001). The classroom social environment and changes in adolescents' motivation and engagement during middle school. *American Educational Research Journal*, 38(2), 437-460. doi: 10.2307/3202465
- Sameroff, A. J., & Chandler, M. J. (1975). Reproductive risk and the continuum of caretaking casualty. *Review of Child Development Research*, 4, 187-244.
- Sameroff, A. J., & Fiese, B. H. (2000). Models of development and developmental risk. In C. H. Zeanah (Ed.), *Handbook of Infant Mental Health* (2nd Ed. ed., pp. 588). New York: Guilford Press.
- Sanetti, L. M. H., & Kratochwill, T. R. (2009). Toward developing a science of treatment integrity: Introduction to the special series. *School Psychology Review*, 38(4), 445-459.
- Schonert-Reichl, K. A., & Hymel, S. (2007). Educating the heart as well as the mind: Social and emotional learning for school and life success. *Education Canada*, 47(7), 20-25.
- Schonert-Reichl, K. A., Stewart Lawlor, M., Oberle, E., & Thomson, K. C. (2009). *Identifying indicators and tools for measuring social and emotional healthy living: Children ages 5 to 12 Years*. Ottawa, Ontario: Public Health Agency of Canada.
- Schultz, D., Izard, C. E., Ackerman, B. P., & Youngstrom, E. A. (2001). Emotion knowledge in economically disadvantaged children: Self-regulatory antecedents and relations to social difficulties and withdrawal. *Development and Psychopathology*, 13, 53-67. doi: 10.1017/S0954579401001043
- Shields, A., Dickstein, D., Seifer, R., Giusti, L., Dodge Magee, K., & Spritz, B. (2001). Emotional competence and early school adjustment: A study of preschoolers at risk. *Early Education & Development*, 12(1), 73-96. doi: 10.1207/s15566935eed1201\_5

- Snyder, F. J., Vuchinich, S., Acock, A., Washburn, I. J., & Flay, B. R. (2012). Improving elementary school quality through the use of a social-emotional and character development program: A matched-pair, cluster-randomized, controlled trial in Hawai'i. *Journal of School Health, 82*(1), 11-20.
- Social and Character Development Research Consortium. (2010). *Efficacy of schoolwide programs to promote social and character development and reduce problem behavior in elementary school children (NCER 2011-2001)*. Washington, DC.
- Stokes, T. F., & Osnes, P. G. (1986). Programming generalization of children's social behavior. In P. S. Strain, M. J. Guralnick & H. M. Walker (Eds.), *Children's social behavior: Development, assessment, and modification* (pp. 407-443). Orlando, FL: Academic Press.
- Street, H., Hoppe, D., Kingsbury, D., & Ma, T. (2004). The game factory: Using cooperative games to promote pro-social behaviour among children. *Australian Journal of Educational & Developmental Psychology, 4*, 97-109.
- Tobler, N. S., Roona, M. R., Ochshorn, P., Marshall, D. G., Streke, A. V., & Stackpole, K. M. (2000). School-based adolescent drug prevention programs: 1998 meta-analysis. *Journal of Primary Prevention, 20*(4), 275-336. doi: 10.1023/a:1021314704811
- Toplak, M. E., West, R. F., & Stanovich, K. E. (2013). Practitioner review: Do performance-based measures and ratings of executive function assess the same construct? *Journal of Child Psychology and Psychiatry, 54*(2), 131-143. doi: 10.1111/jcpp.12001
- Tremblay, A., Strain, P. S., Hendrickson, J. M., & Shores, R. E. (1981). Social interactions of normally developing preschool children: Using normative data for subject selection and target behavior selection. *Behavior Modification, 5*, 237-253.

- Trentacosta, C. J., & Izard, C. E. (2007). Kindergarten children's emotion competence as a predictor of their academic competence in first grade. *Emotion, 7*(1), 77-88. doi: 10.1037/1528-3542.7.1.77
- Ty, S. V. (2013). *An investigation of social responsibility: The SRQS* (Unpublished master's thesis). University of British Columbia, British Columbia, Canada.
- Wang, M. C., Haertel, G. D., & Walberg, H. J. (1997). Learning influences. *Psychology and Educational Practice, 199*-211.
- Weir, I. K., & Duveen, G. (1981). Further development and validation of the pro-social behaviour questionnaire for use by teachers. *Journal of Child Psychology and Psychiatry, 22*, 357-374.
- Weir, I. K., Stevenson, J. S., & Graham, P. G. (1980). Behavioral deviance and teacher ratings of pro-social behaviour: Preliminary findings. *Journal of American Academic Child Psychiatry, 19*, 68-77.
- Youngstrom, E., Wolpaw, J. M., Kogos, J. L., Schoff, K., Ackerman, B., & Izard, C. (2000). Interpersonal problem solving in preschool and first grade: developmental change and ecological validity. *Journal Of Clinical Child Psychology, 29*(4), 589-602.
- Zafiropoulou, M., Sotiriou, A., & Mitsiouli, V. (2007). Relation of self-concept in kindergarten and first grade to school adjustment. *Perceptual and Motor Skills, 104*(3c), 1313-1327. doi: 10.2466/pms.104.4.1313-1327
- Zins, J. E. (2004). *Building academic success on social and emotional learning: What does the research say?* New York, NY: Teachers College Press.

Zins, J. E., & Elias, M. J. (2007). Social and emotional Learning: Promoting the development of all students. *Journal of Education and Psychological Consultation*, 17(2-3), 233-255. doi: 10.1080/10474410701413152