TESTING THE BROADEN-AND-BUILD THEORY IN EARLY ADOLESCENCE:
EXPLORING ASSOCIATIONS OF POSITIVE AFFECT AND PROBLEM SOLVING COPING STRATEGIES

by

Karen Forsyth

B.A., York University, 2012

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

MASTER OF ARTS

in

THE FACULTY OF GRADUATE AND POSTDOCTORAL STUDIES

(Human Development, Learning, and Culture)

THE UNIVERSITY OF BRITISH COLUMBIA

(Vancouver)

October 2016

© Karen Forsyth, 2016
Abstract

In the context of testing the broaden-and-build theory in samples of adults, Fredrickson (1998, 2001) has hypothesized and found that frequent experiences of positive emotions broaden thoughts and behaviours, facilitating coping with stress and adversity, through building long-term psychological, physical, and social resources, which catalyze upward spirals toward future well-being. Yet, to date, scant research attention has been paid to examining the degree to which the broaden-and-build theory extends to research with children and adolescents. To address this gap, we investigated the theory with 96, 4th and 5th graders (48% female; $M = 9.8$ years; $SD = .57$) who completed a battery of measures assessing positive and negative affect and coping (Problem Solving/Self-Reliance and Seeking Social Support) at two time-points during the school year, approximately eight weeks apart. Results from regression analyses indicated that initial positive affect, but not negative affect, predicted improved broadened coping, and initial broadened coping predicted increased positive affect, but not reductions in negative affect. Further analyses indicated that increases in positive affect were mediated by broadened coping, and increases in broadened coping were mediated by positive affect. This study supports the broaden-and-build theory and provides insight into the role of positive emotions in broadening thoughts and behaviours in early adolescence and over time. Limitations and future directions are discussed with regard to the relevance of the broaden-and-build theory for research with adolescents and its educational applications.
Preface

Chapter 2 and 3 are based on work conducted in the Vancouver School Board (VSB) by Dr. Kimberly A. Schonert-Reichl and research assistants, including myself. I was responsible for preparing materials, collecting data, and analyzing the data used in this thesis.

UBC Research Ethics Board approval was obtained for this research. The Certificate Number of the Ethics Certificate obtained is H14-02370.
# Table of Contents

Abstract .......................................................................................................................... ii
Preface ............................................................................................................................. iii
Table of Contents ........................................................................................................... iv
List of Tables .................................................................................................................. vi
List of Figures ............................................................................................................... viii
Acknowledgements ...................................................................................................... ix

Chapter 1: Introduction ................................................................................................. 1
   Early Adolescent Development .................................................................................. 4
   Resilience .................................................................................................................. 6
   Positive Emotions .................................................................................................... 11
   Coping ...................................................................................................................... 15
   Emotions and Coping ............................................................................................. 16
   Summary ............................................................................................................... 23
   The Current Study ................................................................................................. 24

Chapter 2: Method ........................................................................................................... 26
   Participants .............................................................................................................. 26
   Procedure ................................................................................................................ 27
   Measures .................................................................................................................. 28

Chapter 3: Results ........................................................................................................... 32
   Overview ............................................................................................................... 32
   Preliminary Results ............................................................................................. 33
List of Tables

Table 1.1  *Short List of Predictors of Positive Adaptation* ................................................................. 9

Table 3.1  *Coefficient Values for Age and Gender as a Predictor in the Model for Hypotheses 1 and 2* ................................................................. 34

Table 3.2  *Coefficient Values for Gender as a Predictor in the Model for Hypotheses 1 and 2* ................................................................. 34

Table 3.3  *Descriptive Statistics for Affect and Coping Measures* ................................................................. 35

Table 3.4  *Pearson Product-Moment Correlations Between Affect and Coping Measures* .............. 37

Table 3.5  *Sequential Block Regression Assessing Time 1 Positive Affect Predicting Time 2 Problem Solving* .................................................................................................................. 40

Table 3.6  *Sequential Block Regression Assessing Time 1 Problem Solving Predicting Time 2 Positive Affect* .................................................................................................................. 40

Table 3.7  *Sequential Block Regression Assessing Time 1 Negative Affect Predicting Time 2 Negative Affect* .................................................................................................................. 41

Table 3.8  *Sequential Block Regression Assessing Time 1 Positive Affect Predicting Time 2 Seeking Social Support* .................................................................................................................. 43

Table 3.9  *Sequential Block Regression Assessing Time 1 Social Support Seeking Predicting Time 2 Positive Affect* .................................................................................................................. 43

Table 3.10  *Sequential Block Regression Assessing Time 1 Negative Affect Predicting Time 2 Negative Affect* .................................................................................................................. 44

Table 3.11  *Model Coefficients for Time 1 Positive Affect (T1 PA) to Time 2 Positive Affect (T2 PA) Through the Mediated Effect of Changes in Problem Solving (CH PS)* ......................... 47
Table 3.12 Model Coefficients for Time 1 Problem Solving (T1 PS) to Time 2 Problem Solving (T2 PS) Through the Mediated Effect of Changes in Positive Affect (CH PA)............................... 50
List of Figures

Figure 1.1 *The broaden-and-build theory of positive emotions* ................................................................. 19

Figure 3.1 *Example of simple mediation model* .......................................................................................... 46

Figure 3.2 *Simple Mediation Model for Time 1 Positive Affect as a Predictor of Time 2 Positive Affect, Mediated by Residual Changes in Problem Solving. The confidence interval for the indirect effect is a BC CI based on 1000 samples.* ................................................................. 48

Figure 3.3 *Simple Mediation Model for Time 1 Problem Solving as a Predictor of Time 2 Problem Solving, Mediated by Residual Changes in Positive Affect. The confidence interval for the indirect effect is a BC CI based on 1000 samples.* ........................................................................... 50
Acknowledgements

I would first like to thank my supervisor, Dr. Kimberly Schonert-Reichl, for providing me with unwavering support, encouragement, and guidance throughout this process. The immense opportunities you have given me to grow as a researcher have shaped my views of the scientific principles and research practices that guide me both in the lab and field. I am grateful to have had the opportunity to work with such a knowledgeable, inspiring, and influential mentor.

Thank you to my committee member Dr. Martin Guhn, your support and questioning has helped me probe deeper into the philosophical principles that guide the process of scientific inquiry.

Thank you to my committee member Dr. Amery Wu, for providing coherent answers to my endless methodological questions, and opening my eyes to the plurality of perspectives that influence and guide methodological practices.

Thank you to the teachers and students involved in this project, as well as the members of the Social-Emotional Learning Lab, for making this research study possible and being a great source of warmth, encouragement, and support.

Finally, thank you to my parents and Jen. Your love, unwavering support, and encouragement have made this possible. Thank you for inspiring me to love learning, work hard, and for giving me every opportunity to pursue my dreams.
Chapter 1: Introduction

In the past decade, there has been a shift in the field of applied developmental psychology from focusing on mitigating negative outcomes and reducing risks, to identifying and promoting individual strengths in childhood and adolescence (Huebner, Gilman, & Furlong, 2009; Panter-Brick & Leckman, 2013; Schonert-Reichl, 2008), as well as in adulthood (Lyubomirsky, King, & Diener, 2005; Seligman & Csikszentmihalyi, 2000; Sheldon, Kashdan, & Steger, 2011). Although the reduction or elimination of problems is important, helping individuals thrive and form positive connections to the larger world are equally important. This may be especially pertinent during early adolescence (roughly ages 9-14), as fostering healthy development at this time can have a significant impact on long-term well-being (O’Dougherty Wright & Masten, 2005; Olsson, Mcgee, & Williams, 2013). This transition period from childhood to adolescence is a time when individuals begin to face greater stress, both social and academic, and many chronic health and emotional problems begin to emerge. Yet, this period can also be seen as a critical window for fostering healthy social and emotional development, given that cognitive and neurobiological development occurring during this time can influence socio-emotional development (Lawlor & Schonert-Reichl, 2009; Schonert-Reichl, 2008, 2011).

With this burgeoning interest in “optimal human functioning” (Huebner et al., 2009, p. 3), resilience and positive psychology frameworks are increasingly being recognized as important approaches to utilize when investigating the variables and mechanisms that play a role in promoting positive socio-emotional development and well-being in children and adolescents (Kia-Keating, Dowdy, Morgan, & Noam, 2011). Increasing evidence has illustrated that both of these approaches target the promotion of positive behaviours as well as the reduction of negative behaviours, and are able to address both health promotion and disease prevention, while taking
the plasticity of human development into account (Fredrickson, 2013a; Guerra & Bradshaw, 2008; Kia-Keating et al., 2011; Masten & Tellegen, 2012a; Schwartz, Pantin, Coatsworth, & Szapocznik, 2007). Yet, despite their substantial overlap and complementary perspectives, they are rarely fully integrated into one unified approach (Luthar, Lyman, & Crossman, 2014). Briefly, positive psychology is the study of positive emotions, positive character, and positive institutions that enable thriving (Seligman & Csikszentmihalyi, 2000). Resilience is the study of individual strengths that protect and promote positive adaptation in the face of significant adversity (Masten, 2010). Integrating these two frameworks may be beneficial for fostering healthy child and adolescent development through the potential to build on the interconnectedness of positive emotions and positive adaptation in the development of coping skills, long-term resources, and well-being for all individuals, regardless of exposure to risk.

The broaden-and-build theory (Fredrickson, 1998, 2001) of positive emotions is one framework that has begun to explore potential connections between positive psychology and resilience by studying the effects of experiencing positive emotions on health and well-being over time (Cohn, Fredrickson, Brown, Mikels, & Conway, 2009; Fredrickson & Branigan, 2005; Fredrickson & Joiner, 2002; Tugade & Fredrickson, 2004; Tugade, Fredrickson, & Barrett, 2004). Positive emotions—such as joy, interest, and hope—play an important role in our everyday lives: a good laugh with friends has the power to lift our spirits after a bad day at work; a hug from a loved one can make you feel cared for and supported when things are looking bleak; an exciting new experience can influence you to see the world differently. Research on this theory with adults suggests that when people experience positive emotions, they broaden their thinking and actions, which enables creative thinking and flexibility and facilitates coping with stress and adversity. This, in turn, leads to more happiness, new success, and the process
repeating itself—thus creating upward spirals. In addition to this, the process has been shown to counter downward spirals of thinking and negative emotions, further building resilience (Cohn et al., 2009; Fredrickson & Branigan, 2005; Fredrickson & Joiner, 2002; Tugade & Fredrickson, 2004; Tugade et al., 2004). Research exploring the theory with adults suggest that positive emotions, while beneficial within the present, can also produce optimal functioning over the long-term (Fredrickson, 2013b; Fredrickson & Branigan, 2005; Fredrickson & Joiner, 2002). Thus, it is important to understand whether positive emotions have lasting benefits beyond their immediate effect and to identify the mechanisms through which positive emotions may produce these benefits.

Given that longitudinal resilience research has shown that factors related to resilience often emerge in childhood and continue into adulthood (Masten & Tellegen, 2012b; Olsson et al., 2013), exploring whether broadened thinking and actions contribute to optimal developmental outcomes for early adolescents should be empirically examined. Indeed, the broaden-and-build theory may be particularly relevant for children and adolescents, as their lives are often characterized by the development of skills and resources to more effectively interact with their environment (Holder, 2012), yet there has not been much effort to extend this theory to children and adolescents and their positive emotions. This gap was addressed in the present study by investigating whether the broaden-and-build theory yields similar findings when examined with a group of early adolescents. Specifically, the purpose of the current study was to explore whether (1) positive emotions predict broad-minded coping and whether broad-minded coping predict positive emotions, and (2) how these predicted processes might occur over time in a sample of 4th and 5th grade students.
I begin this chapter with a discussion of early adolescence, characterizing it as a period of rapid development that offers many opportunities to enhance strength and capability. I then review the literature on childhood and adolescent resilience which has given us insight into understanding the risk, protective, and promotive factors that increase positive outcomes, as well as how this information can be used to help early adolescents develop a “resilient mindset” (Brooks & Goldstein, 2001). In the next section I explore the role of positive emotions and their contribution to psychological and physical well-being, followed by a discussion of research on relevant coping strategies used by children and adolescents who have been categorized as resilient. I then review a series of studies conducted with children, adolescents, and adults, which demonstrate the influence of positive emotions on coping. In the final section I introduce the purpose of the current study and the specific research questions that will be examined.

**Early Adolescent Development**

The period between the ages of 9 and 14, frequently referred to as early adolescence, is a period of significant change and development (Oberle, Schonert-Reichl, & Zumbo, 2011; Otis, Huebner, & Hills, 2016; Zimmermann & Iwanski, 2014). Individuals experience significant neurobiological, psychological, and social changes during this period, with both biological changes and social experiences increasing their ability to recognize and understand different emotions occurring during this time (Buckley & Saarni, 2009; Roeser & Eccles, 2014). This is also a period in which individuals begin to face greater stress, both socially and academically (Roeser & Eccles, 2014), and may begin to experience chronic social and emotional health issues (Waddell, McEwan, Shepard, Offord, & Hua, 2005). Many behavioural problems begin during the early adolescent years (Olsson et al., 2013), particularly for those individuals entering middle school, and many psychological problems also increase during this time (Roeser & Eccles,
Researchers have observed during this period decreases in optimism, motivation, achievement, self-esteem, interest in school, and sense of belonging (Roeser & Eccles, 2014), as well as increases in test anxiety, absences, and school dropout (Roeser & Eccles, 2014; Wigfield, Byrnes, & Eccles, 2009). Moreover, a report for the United Way of the Lower Mainland of British Columbia (2011) on the well-being of Canadian children concluded that, during this time, there is "a significant decrease in children’s self reported confidence, self-concept (self-worth), optimism, empathy, satisfaction with life, and social responsibility" (Schonert-Reichl, 2011, p. 7). For example, grade 4 students reported feeling quite optimistic and positive about themselves, whereas grade 7 students reported feeling less optimistic (Schonert-Reichl, 2011). Different patterns of coping responses for 8 – 12 year-olds have also been reported (Compas et al., 2014; Zimmer-Gembeck & Skinner, 2011). While behavioral coping responses, such as playing, or reading to distract oneself from stress and support seeking, are common ways that children and adolescents cope with stress during this time, there is now an increased emphasis on being self-reliant (Zimmer-Gembeck & Skinner, 2011). Cognitive techniques for coping are also being added to the range of coping strategies that early adolescents use (e.g., direct problem-solving and cognitive distraction) (Zimmer-Gembeck & Skinner, 2011).

The neurobiological development that occurs over this period also has important implications for socio-emotional development. Research on brain development during middle childhood and adolescence is still in its beginning stages. However, current findings indicate that emotion centers in the brain are particularly sensitive during early adolescence (Ernst et al., 2005; Forbes & Dahl, 2010; Guyer et al., 2008; Monk et al., 2003). Brain regions associated with higher cognition undergo substantial development during this period, and brain regions involved in emotion and higher cognition become increasingly connected (Luna & Sweeney, 2001). Due
to these developments, adolescents may show increased responding and emotional reactivity, especially to positive stimuli (Ernst et al., 2005; Ernst, Pine, & Hardin, 2006; Forbes & Dahl, 2010; Galvan et al., 2006). For example, compared to children and adults, adolescents showed exaggerated activity in brain regions involved in reward processing after receiving a reward, and the increased activity was linked to subjectively higher positive affect (Ernst et al., 2005; Galvan et al., 2006). Rapid development is also seen in early adolescence in the area of the brain responsible for reasoning, planning and decision-making, emotional regulation, and abstract and hypothetical thought (Forbes & Dahl, 2010; Luna & Sweeney, 2001). Finally, research has shown that these brain regions become more interconnected during adolescence (Ernst et al., 2006; Nelson, Leibenluft, McClure, & Pine, 2005). Indeed, it is during the early adolescent years that the brain undergoes its most rapid acceleration of development since infancy, with important implications for how adolescents think. Early adolescents are increasingly developing the capacity to think abstractly, "to imagine the possibilities, to identify options and to systematically weigh each option" (Lawlor & Schonert-Reichl, 2009, p. 22). This development of higher cognitive functions allows early adolescents to develop an increasing sophistication and greater understanding of the causes, consequences, and nature of social and emotional functioning (Zeman, Cassano, Perry-Parrish, & Stegall, 2006). With reactivity to positive stimuli being particularly influential at this time, these findings also indicate that early adolescence may be a period in which experiencing positive emotions can have a particularly large effect on the development of resilience.

**Resilience**

The field of resilience has changed the way that we view childhood and adolescence. It is a line of theory and research that has shifted the focus from reducing risk and vulnerability
towards enhancing strengths and capabilities. In child and adolescent development, resilience is defined as “the capacity for, processes of, or patterns of positive adaptation during or following exposure to significant risks or threats to human function or development” (Masten, Best, & Garmezy, 1990, p. 426) that lead to positive outcomes (Luthar, 2006; Masten & Tellegen, 2012b; Rutter, 2012). Or, in simpler terms, resilience means doing well in life despite adversity (Rutter, 2006).

One of the core principles of resilience is that this phenomenon is actually not all that extraordinary. In fact, it is a rather “ordinary” occurrence that can be conceptualized as a common outcome of basic human adaptation systems, such as achievement in developmental tasks (Masten & Tellegen, 2012a; O’Dougherty Wright, Masten, & Narayan, 2012). “Resilience does not come from rare and special qualities, but from normative human resources in minds, brains and bodies from children, in their families and relationships and in their communities” (Masten, 2001, p. 227). Thus, it is not a fixed trait or quality that only some people possess, but, rather, it is a process that develops over time, and can be present in some circumstances and not in others (Masten & Tellegen, 2012a; O’Dougherty Wright et al., 2012). Consequently, this understanding of the phenomenon has inspired generations of researchers to investigate pathways that lead to positive outcomes in the context of adversity, and more recently, whether these pathways can be applied to enhance the life of all children (Brooks & Goldstein, 2001).

Researchers have identified two major categories of predictors of resilience: protective factors and promotive factors. Protective factors imply some type of shielding or protecting from the effects of risk or adversity, whereas promotive factors are measurable characteristics in a group of individuals or in their situation that predict positive outcomes across both low and high levels of risk (Luthar et al., 2014). Evidence indicates that factors that promote resilience include
both external (i.e., family and community organizations) and internal (i.e., individual resources) factors. These predictors of better adaptation have been summarized in a “short list” (Masten, 2001, 2007), and are shown in Table 1.1. These include internal factors such as good cognitive abilities, problem-solving skills, and executive functions; effective emotional and behavioral regulation strategies; positive views of self (i.e. high self-confidence, self-esteem, self-efficacy); and a positive outlook on life, and external factors such as relationships (i.e., parenting quality, close relationships with competent adults, friendships with prosocial peers); and community resources and opportunities (i.e., connections to prosocial organizations) (Garmezy, Masten, & Tellegen, 1984; Luthar, Cicchetti, & Becker, 2000; Masten, 2001; Werner & Smith, 1992). These predictors suggest there are important underlying human adaptive systems at work that are fundamental for development. For example, learning and cognition, and family and peer systems, may all account for much of the observed resilience in children, as they represent the fundamental adaptive systems that protect and promote human development (Masten, 2001).

Support for the conceptualization and operationalization of resilience comes from a series of longitudinal studies following a group of children initially 8 - 12 years old, with follow-up studies conducted 7, 10, and 20 years later. Results indicated that individuals characterized by competence (i.e., without major adversity) and resilience (i.e., major adversity, but adaptive) reported average or better cognitive skills, openness to experience, drive for mastery, conscientiousness, close relationships with parents, adult support outside the family, and feelings of self-worth, compared to the overall cohort (e.g., Masten et al., 1990; Masten & Reed, 2002; Rutter, 1979). Conversely, individuals who reported experiencing high levels of adversity with poorer outcomes scored very high on measures of neuroticism (Masten & Tellegen, 2012a) and negative emotionality, and scored low on IQ, compared to their competent
Table 1.1 *Short List of Predictors of Positive Adaptation*

| Child Characteristics | • Social and adaptable temperament in infancy  
| | • Good cognitive abilities and problem-solving skills  
| | • Effective emotional and behavioural regulation strategies  
| | • Positive view of the self (self-confidences, high self-esteem, self-efficacy)  
| | • Positive outlook on life (hopefulness)  
| | • Faith and a sense of meaning in life  
| | • Characteristics valued by society and self (talents, sense of humor, attractiveness to others)  
| Family Characteristics | • Stable and supportive home environment: low level of parental discord; close relationship to responsive caregiver; authoritative parenting style (high on warmth, structure/monitoring, and expectations); positive sibling relationships; supportive connections with extended family members  
| | • Parents involved in child’s education  
| | • Parents have individual qualities listed above as protective for child  
| | • Socioeconomic advantages  
| | • Postsecondary education of parent  
| | • Faith and religious affiliations  
| Community Characteristics | • High neighborhood quality: safe neighborhood; low level of community violence; affordable housing; access to recreational centers; clean air and water  
| | • Effective schools: well-trained and well-compensated teachers; after-school programs; school recreation resources (sports, music, arts)  
| | • Employment opportunities for parents and teens  
| | • Connections to caring adult mentors and pro-social peers  
| | • Good public health care  
| | • Access to emergency services (police, fire, medical)  
| | • Connections to caring adult mentors and pro-social peers  
| Cultural or Societal Characteristics | • Protective child policies (child labor, child health, and welfare)  
| | • Value and resources directed at education  
| | • Prevention of and protection from oppression or political violence  
| | • Low acceptance of physical violence  

and resilient peers (Masten & Tellegen, 2012a). This group showed much higher levels of negative life experiences by late adolescence, such as being arrested and having conflict in relationships (Masten & Tellegen, 2012a).

Other resilience research has comparable outcomes. For example, in a study on ego-resilience and curiosity with 5-year-old children, greater resilience was associated with the ability to respond flexibly, persistently, and resourcefully, especially in problem situations (Arend, Gove, & Sroufe, 1979). Similarly, resilient children were observed to set realistic goals and expectations for themselves, and to solve problems and make decisions, such that they were more likely to view mistakes, hardships, and obstacles as challenges to confront, rather than as stressors to avoid (Brooks & Goldstein, 2001; Shure & Aberson, 2005). These children also developed effective interpersonal skills with peers and adults (Brooks & Goldstein, 2001).

Research with adult populations on resilience has identified other promotive factors: positive emotions and positive appraisals. For example, adults high in psychological resilience have been found to have optimistic, zestful, and energetic approaches to life; curiosity and openness to new experiences; and are characterized by high positive emotionality (Block & Kremen, 1996; Letzring, Block, & Funder, 2005; Tugade & Fredrickson, 2004; Tugade et al., 2004). Relatedly, to achieve effective outcomes, resilient adults use positive emotions and thinking styles, such as humor (Masten, 2001; Werner & Smith, 1992; Wolin & Wolin, 1993), creative exploration (Cohler, 1987), optimistic thinking (for a review, see Masten & Reed, 2002), and finding positive meaning in negative events (Fredrickson, Tugade, Waugh, & Larkin, 2003; Moskowitz, Folkman, Collette, & Vittinghoff, 1996). Such positive appraisals of negative events have been shown to produce positive emotions and help buffer against stress (Folkman &
Thus, across individuals’ lifespan, promotive factors such as cognitive abilities and problem solving skills, and a positive outlook on life, have been associated with greater resilience. Yet, as indicated in studies with adults, another promotive factor of resilience is experiencing positive emotions, and in particular, they may be one potentially potent pathway to fostering resilience.

**Positive Emotions**

Understanding how positive emotions lead to greater resilience is an important area of research. Negative emotions—such as anger or fear—are believed to reduce learning and exploratory responses by narrowing thoughts and behaviours towards fight-or-flee responses. For example, anger or sadness mobilize us to defend ourselves, or to be critical and detail-focused, which is important for certain kinds of problem solving (Oishi & Kurtz, 2011). Positive emotions, on the other hand, are thought to have different functions and outcomes (Fredrickson, 1998, 2001; Shiota, Keltner, & John, 2006), and have been theorized to broaden thoughts and behaviours, creating greater opportunities for learning and adaptive responses, building resilience in the process (Ashby, Isen, & Turken, 1999; Fredrickson, 2000; Isen, 2000; Isen, Daubman, & Nowicki, 1987). Thus, suggesting that positive emotions—such as joy, gratitude, interest, love, optimism, and hope—elicit thought-action responses that may promote resilience (Fredrickson, 2013b; Tugade & Fredrickson, 2004; Tugade et al., 2004). *Joy*, for example, emerges when something unexpectedly good happens, and has a corresponding thought-action to play and/or get involved (Fredrickson, 2013b; Frijda, 1986). *Interest* emerges when a situation appears to be safe, but offers novelty (Izard, 1977; Silvia, 2008). Its corresponding thought-action is to explore
and learn (Fredrickson, 2013b). Hope—perhaps surprisingly, and different from the other emotions—arises in the face of fear, when circumstances seem dire and people yearn for better ones (Lazarus, 1991). Its corresponding thought-action is to plan for a better future (Fredrickson, 2013b). Thus, positive emotions are theorized to lead individuals to approach safe and potentially beneficial situations, where they can gain new skills from experiential learning, knowledge, and resilience and optimism.

A meta-analysis of over 250 studies exploring the effects of positive emotions, positive affect, and happiness on adult populations provides support for the theorized broadening role of positive emotions. Results revealed that positive emotions were not only associated with success in life, but played a causal role in producing success (Lyubomirsky et al., 2005). More specifically, positive emotions promoted original thinking and fostered the resources, skills, and behaviors of sociability and activity, altruism, liking of self and others, strong bodies and immune systems, and effective conflict resolution skills that contributed to the accrual of success later in life. The meta-analysis concluded that happiness was connected to and preceded many of the behaviours and successful outcomes reported, and that positive affect could be the cause of many of the characteristics, resources, and successes that were associated with happiness (Lyubomirsky et al., 2005).

While positive emotions and their corresponding thought-actions have not been explicitly studied in the field of child and adolescent development, findings from research in this area have observed that positive emotions are associated with indices of well-being and life satisfaction. For example, in a longitudinal study with 10 -17 year-olds, positive emotions and character strengths (i.e., love, hope, and zest) were related to increased levels of life satisfaction one year later (Park & Peterson, 2006), as well as fewer internalizing problems (e.g., depression and
anxiety) and externalizing problems (e.g., aggression) (Park & Peterson, 2006). Similarly, first-year high school students who rated themselves as more optimistic were better able to cope with school-related challenges than students who rated themselves as more pessimistic (Boman & Yates, 2001). Conversely, students with high levels of pessimism were found more likely to be hostile towards school and deal with their anger in more destructive ways (Boman, Smith, & Curtis, 2003). Additionally, early adolescents with more optimistic beliefs have been associated with greater peer acceptance (Oberle, Schonert-Reichl, & Thomson, 2010) and experiencing greater satisfaction with life (Oberle et al., 2011). Furthermore, evidence has indicated that optimism can play a protective role in depression for early adolescents (Ames, Rawana, Gentile, & Morgan, 2015; Sánchez Hernández & Méndez Carrillo, 2010).

Researchers examining hope have found that in 10 – 18 year-olds, higher ratings of hope predicted lower ratings of internalizing behaviors one year later (Valle, Huebner, & Suldo, 2006). Higher ratings of hope also served as a buffer against the effects of increases in internalizing behaviors through its role as a moderator in the relationship between stressful life events and well-being (Valle et al., 2006). Another study found that when hope was utilized as the basis for an intervention designed to enhance well-being, it predicted enhanced mental health one and two years later (Marques, Lopez, & Pais-Ribeiro, 2011). Furthermore, hope has been associated with various positive internal factors—such as problem-solving abilities, optimism, positive self-esteem, and life satisfaction (Lopez, Rose, Robinson, Marques, & Pais-Ribeiro, 2009; Valle et al., 2006).

**Regulating positive emotions.** Importantly, research suggests that individuals can affect the likelihood and duration that they feel positive emotions through emotion regulation strategies. Thus, emotion regulation is “the process by which individuals influence which
emotions they have, when they have them, and how they experience and express them" (Gross, 1998, p. 275), and includes regulating the latency, duration, and intensity of emotional arousal (Buckley & Saarni, 2009). Learning to recognize, regulate, and express emotions appropriately and effectively is an important developmental task that plays a crucial role in determining goal achievement and the ability to cope with environmental and social changes (Buckley & Saarni, 2009).

Two emotion regulation strategies that have been shown to increase or decrease the experience of positive emotions are savoring and dampening (Quoidbach, Berry, Hansenne, & Mikolajczak, 2010). Savoring is the prolonging or increasing of positive emotional experiences, and includes strategies such as sharing or expressing, being present, celebrating, or reflecting on positive events, and can be used to maintain and increase positive emotions (Bryant, Ericksen, & DeHoek, 2008; Bryant & Veroff, 2007). Alternatively, dampening involves decreasing positive emotional experiences through strategies such as suppression, distraction, fault-finding or negative reminiscing (Quoidbach et al., 2010).

Studies of children and adolescents employing these emotion regulation strategies have indicated that regulating positive emotions are associated with positive outcomes. For example, children who reported greater capacity to savor positive events reported higher levels of well-being and self-esteem (Bryant et al., 2008). Similarly, a study with early adolescents found that various savoring responses—including sharing, marking, celebrating, and reflecting on a positive event—were linked to sustained positive feelings, whereas minimizing or dampening responses were related to internalizing and externalizing problems (Gentzler, Ramsey, Yuen Yi, Palmer, & Morey, 2014).
Coping

Helpful coping styles have been linked to both the current and future well-being of children, adolescents, and adults. Coping has been defined as constantly changing cognitive and behavioral efforts to manage specific external and/or internal demands that are appraised as taxing or exceeding the resources of the person (Folkman & Lazarus, 1985). It has been associated with physical and psychological adjustment in adults (Folkman & Lazarus, 1986; Folkman & Moskowitz, 2003), as well as behavioural and emotional adjustment in adolescents and children (Compas, Orosan, & Grant, 1993; Dumont & Provost, 1999; Hampel & Petermann, 2005). Helpful coping styles may promote resilience and reduce physiological distress, whereas maladaptive coping styles may prolong or worsen the mental and physical health effects of stress (Lazarus & Folkman, 1984; Low, Matthews, & Hall, 2013; Taylor & Stanton, 2007). In children and adolescents, utilizing coping strategies such as problem-focused coping, positive reappraisal, and infusing ordinary events with positive meaning, have been shown to be associated with positive outcomes. In particular, during early adolescence, they begin to use more sophisticated problem-focused coping approaches and support seeking (Gentzler et al., 2014; Hampel & Petermann, 2005; Zimmer-Gembeck, Skinner, Morris, & Thomas, 2013).

Roth and Cohen (1986) described a framework for coping in children and adolescents in which individuals use either an approach- or avoidance-focused strategy when faced with a stressful situation. Approach-focused coping is described as behavioural, cognitive, or emotional activities directed towards altering a stressful situation through problem solving or support seeking strategies. Avoidance-focused coping strategies are behavioural, cognitive, or emotional activities that are focused on avoiding or distancing oneself from a stressful situation or trying to mitigate feelings through distraction or externalizing.
Studies comparing the coping strategies have found that adolescents who primarily used approach-focused coping strategies reported fewer symptoms of depression, whereas adolescents who continually avoided or denied problems rated themselves as more depressed (Compas, Connor-Smith, Saltzman, Thomsen, & Wadsworth, 2001; Herman-Stahl, Stemmler, & Petersen, 1995; Seiffge-Krenke & Klessinger, 2000; Seiffge-Krenke & Stemmler, 2002). In addition, approach coping was found to be a protective factor for internalizing disorders, whereas avoidant coping was a risk factor for internalizing disorders in 10- to 17-year-old adolescents (Steinhausen & Winkler Metzke, 2001). For adolescents categorized as well-adjusted and resilient, high use of active coping strategies, positive relations with parents and peers, and higher optimism appeared to suggest a potential protective role in buffering against high stress and depressive symptoms (Herman-Stahl & Petersen, 1996). Also, resilient adolescents had higher scores on problem solving coping strategies than adolescents who were categorized as vulnerable (Dumont & Provost, 1999). Furthermore, Irish adolescents and high school students in a high achieving school who used coping strategies such as positively appraising stressful situations and seeking social support, reported elevated life satisfaction. In contrast, use of avoidant strategies such as blaming others and complaining in times of stress, was associated with lower levels of life satisfaction (Nevin, Carr, Shevlin, Dooley, & Breaden, 2005; Suldo, Shaunessy, & Hardesty, 2008). Hindu adolescents using seeking social support and problem-solving strategies reported higher ratings of general life satisfaction, whereas using avoidance coping strategies related negatively to life satisfaction (Antaramian, Kamble, & Huebner, 2016).

**Emotions and Coping**

How individuals cope with stressful situations and the emotions they experience can best be understood as a reciprocal dynamic relationship that is inextricably linked (Folkman &
There is growing recognition of the presence of positive emotions in the stress process (Aspinwall & MacNamara, 2005; Folkman, 1997; Folkman & Moskowitz, 2003; Seligman & Csikszentmihalyi, 2000), and the coping literature has linked positive emotions with better coping in adults (Folkman, 2008; Lyubomirsky, 2010; Tugade & Fredrickson, 2004; Tugade et al., 2004). When individuals experience positive emotions, they are better able to bring negative events, emotions, and experiences to mind and use adaptive coping strategies to process them (Cohn et al., 2009; Larsen, Hemenover, Norris, & Cacioppo, 2003). For example, adults who expressed more positive affect and laughed while speaking about their lost loved one reported less grief, increased positive emotions, and better social relations (Bonanno & Keltner, 1997; Keltner & Bonanno, 1997). In another study, men caring for their partners with AIDS who were able to find positive meaning in ordinary events by using more problem-focused types of coping, reported being better able to cope with the stress and bereavement associated with caregiving (Folkman, 1997; Folkman & Moskowitz, 2000; Moskowitz et al., 1996). In addition, mothers hospitalized for long periods after complications with childbirth who were able to find benefits in their situation showed greater well-being for both themselves and their children, as indicated 18 months later by both their own scores on measures of well-being as well as their child’s developmental test scores (Affleck & Tennen, 1996).

The experience of positive emotions has been shown to broaden thoughts and behaviours, leading to building adaptive physical, intellectual, and social responses to the environment (i.e., coping resources) (Ashby et al., 1999; Fredrickson & Branigan, 2005; Isen et al., 1987; Wadlinger & Isaacowitz, 2006). One specific type of coping that has been linked to positive emotions and better outcomes in adults is broad-minded coping (Fredrickson & Branigan, 2005;
Broad-minded coping or broadened coping, is a term/concept created by Fredrickson (2002) to describe the specific type of coping that is hypothesized to occur in response to experiencing a positive emotion, is where an individual’s “scopes of attention, cognition, and action is broadened to widen the array of precepts, thoughts, and actions presently in mind,” (Fredrickson & Branigan, 2005, p. 315) and should facilitate coping.

In an attempt to explore the affects of experiencing positive emotions on well-being and resilience in adults, Fredrickson (1998, 2001) has taken this concept one step further and developed the broaden-and- build theory of positive emotions, see Figure 1.1. The theory indicates that positive emotions, while beneficial within the present, can actually produce optimal functioning over the long-term as well. These emotions broaden attention, compared with neutral and negative emotional states (Fredrickson & Branigan, 2005; Wadlinger & Isaacowitz, 2006), increase creativity and flexibility, allow individuals to be open to a wider range of ideas and thoughts while problem solving (Ashby et al., 1999; Isen, 2008), and lead not only to the generation of more problem-solutions, but to more innovative solutions (Isen et al., 1987). More specifically, the broaden-and-build theory predicts that positive emotions, as opposed to neutral and negative emotions, broaden thoughts and actions, enabling more adaptive responses to stressors, creating greater learning opportunities and an accumulation of resources, such as cognitive (e.g., enhanced learning and intellectual performance), physical (e.g., better health and longevity), psychological (e.g., optimism and resilience), and social (e.g., creating and sustaining relationships) resources, leading to future well-being (Fredrickson, 1998, 2001). Thus, when individuals experience stress and are able to consider and appraise negative situations or adversity in ways that are adaptive, they show better outcomes, and, despite experiencing
depressive moods and stress, continue to build resources they can use to help themselves in times of need.

To test these hypotheses directly, Fredrickson and Joiner (2002) surveyed a sample of 138 undergraduates at two time-points, five weeks apart. Using identical measures at both time-points, the participants responded to two self-report questionnaires: one measuring positive and
negative affect, the 20-item Positive and Negative Affect Schedule (PANAS; Watson, Clark, & Tellegen, 1988), and the other measuring coping responses, the 48-item Coping Responses Inventory (CRI; Moos, 1988). From the eight CRI subscales, to index broad-minded coping, the six item Cognitive Analysis subscale (since renamed the Logical Analysis subscale; Moos, 1993) was used (e.g., “think of different ways to deal with the problem” and “try to step back from the situation and be more objective”). To assess whether the other CRI subscales would show the same pattern as hypothesized with broad-minded coping, the same analyses were run with the seven other subscales.

Results indicated that initial positive emotions, but not negative emotions, predicted improved broad-minded coping, and that initial broad-minded coping predicted later positive, but not negative emotions. These effects were observed over time, supporting the hypothesis that positive emotions and broad-minded coping lead to an upward spiral of well-being over time. Conversely, when the analyses were run with the other seven subscales, the Emotional Discharge and Seeking Counsel subscales were predicted by positive emotions, but neither showed the same pattern as with broad-minded coping.

Burns et al. (2008) attempted to replicate and extend the original findings from Fredrickson and Joiner’s (2002) study. Using a sample of 185 undergraduate students, positive affect, broad-minded coping, interpersonal trust, and social support were assessed at two time-points, two-months apart. In addition to testing the broaden-and-build theory, Burns et al. (2008) tested whether the results might be based on changes in dopaminergic functioning.

Results supported the original empirical study: positive affect and broad-minded coping mutually predicted each other and lead to an upward spiral of well-being over time, as did positive affect and interpersonal trust. Contrary to expectation, positive affect did not
demonstrate an upward spiral relation with social support.

Other studies conducted by Fredrickson and colleagues, expanding on the results of the initial broaden-and-build study, have shown similar outcomes. For example, using daily surveys, undergraduates who reported experiencing more positive emotions on a daily basis exhibited greater increases in life satisfaction and resilience one month later (Cohn et al., 2009). In a study following the September 11th terrorist attacks, undergraduates who were tested prior to the attacks, and again after, demonstrated that experiencing positive emotions in the wake of the attacks fully accounted for the ability of positive emotions to buffer against depression and increase thriving in people who experienced more positive emotions and exhibited fewer depressive symptoms (Fredrickson et al., 2003). In another study, following interventions focused on teaching gratitude and caring toward self and others, working adults reported increased positive emotions, such as love, amusement, joy, and contentment, and more personal resources, including increased social support and well-being, decreased physical illness, and more optimism (Fredrickson, Cohn, Coffrey, Pek, & Finkel, 2008).

**Positive emotions and coping in children and adolescents.** The majority of research on broad-minded coping has been conducted with adults and few studies have looked at the relationship between broad-minded coping and positive emotions with children and adolescents. However, some initial studies suggest that inducing positive emotions can contribute to creative thinking and improved problem solving.

A study conducted by Greene and Helga (1988) split a sample of 8th grade students into two groups: an induced positive affect group and an induced neutral state group. The students were asked to complete creative thinking and problem solving tasks. Researchers found that students in the induced positive affect group scored higher on the creative thinking (i.e.,
generating both more and unusual examples) and problem solving tasks (i.e., those involved in correctly solving the problem) than students in the neutral state group, suggesting that positive affect may encourage creative thinking and problem solving in adolescents.

Bryan and Bryan (1991) explored the effect of induced positive mood in two studies with two samples: (1) students at risk for school failure and (2) students with learning difficulties. In the first study, 3rd to 5th grade students who had been identified by teachers as “at risk for school failure” and as normally-achieving students were either induced to a positive mood condition or neutral condition. In the second study, junior high and high school students from private schools for students with learning difficulties were either induced to a positive mood condition or neutral condition. Students completed a measure of self-efficacy for math in both studies and were given five minutes to do 50 math problems. In both studies, students who were in the positive mood condition completed significantly more problems than students in the neutral condition. Moreover, students in junior high and high school reported high self-efficacy in the positive mood condition. These results suggest that positive mood may influence the learning and performance of students with learning difficulties and play a role in their self-efficacy.

The study conducted by Reschly, Huebner, Appleton, and Antaramian (2008) is the only one within the literature that has directly examined the relation between positive emotions and broad-minded coping in a sample of adolescents. The study had a sample of 7th to 10th grade students, and used self-report measures at one time-point, to assess the relationships between positive emotions during school, coping strategies, and student engagement in school and relationships. Positive and negative emotions were assessed via the Positive and Negative Affect Schedule-Child (PANAS-C; Laurent et al., 1999), coping via the “Approach: Seeking Social Support and Problem Solving” subscales of the Self-Report Coping Scale (SRCS; Causey &
Dubow, 1992), and student engagement via the Student Engagement Instrument (SEI; Appleton, Christenson, Kim, & Reschly, 2006). The SRCS “approach” subscales—“Self-Reliance/Problem Solving” and “Social Support Seeking”—in particular were selected because the researchers’ believed they were the best, age-appropriate representation of Fredrickson’s (2005; 2002) broad-minded coping. Data in this study were cross-sectional, rather than longitudinal, which only allowed the authors to test the broaden component of the broaden-and-build theory.

The researchers found that frequent positive emotions in school, but not negative emotions, related to broadened coping skills and greater engagement in school activities and supportive adult relationships. More specifically, significant positive correlations were reported between positive affect and engagement, whereas negative affect was significantly negatively associated with engagement. Furthermore, significant positive correlations were found between positive affect and “approach” coping strategies; negative affect was unrelated to “approach” coping. Both coping subscales (“Social Support Seeking” and “Problem Solving/Self-Reliance”) were significantly correlated with engagement. Findings indicated that “Seeking Social Support” partially mediated the relationship between positive affect and engagement, and “Problem Solving/ Self-Reliance/” mediated the effect of positive affect on engagement. So while only aspects of the broaden-and-build theory were tested, similar to studies with adults, findings suggest that positive emotions, but not negative emotions relate to broad-minded coping in adolescents.

Summary

Though generating important insights, research to date on the broaden-and-build theory is incomplete; it has almost exclusively focused on adult populations. Although the theory has direct and indirect support from existing research with adults, relatively little is known about
whether the theory extends to children and adolescents and their positive emotions. This gap in the field of child and adolescent development is likely due to the recent shift from researchers who are now arguing for a strengths-based approach to developmental theory, which includes identifying and promoting individual strengths in childhood and adolescence. Given that early adolescence is both a period of increased stress and rapid cognitive and neurobiological development, the strategies they use for coping are important for their adjustment and health.

Findings from developmental theory and literature suggest similar effects to what has been seen with adults: positive affect, positive psychological traits (e.g., optimism and hope), and induced positive emotions are associated with creative thinking, problem-solving, coping, indices of well-being, and resilience in children and adolescents. However, to date, there is limited research exploring whether positive emotions elicit broad-minded coping, and no one has examined whether broadened patterns of thoughts and actions accumulate, and build long-term psychological, physical, and social resources in early adolescents. Therefore, in order to investigate the role of positive emotions on immediate and long-term coping, the broaden-and-build theory must be tested with a group of early adolescents.

The Current Study

In light of the relative lack of research exploring the broaden-and-build theory with children or adolescents, the current study is primarily exploratory in nature, and thus the hypotheses, methods, and analyses were designed and guided by what was reported in Fredrickson and Joiner’s (2002) study. Using a group of 4th and 5th grade students, positive emotions and broad-minded coping were assessed at two time-points, approximately 8 weeks apart. The present study examined whether for early adolescents, experiencing positive emotions
would facilitate broad-minded coping and vice versa, and whether the reciprocal experiences of positive emotions and broad-minded coping would contribute to building enduring broadened coping resources, and subsequent experiences of more positive emotions. Consequently, it was hypothesized that, for early adolescents:

1. Higher levels of positive emotions at time 1 would predict improvements in the use of broad-minded coping strategies from time 1 to time 2. Conversely, higher levels of negative emotions at time 1 would not predict changes in the use of broad-minded coping strategies from time 1 to time 2.
2. Greater use of broad-minded coping strategies at time 1 would predict an increase in positive emotions from time 1 to time 2. Conversely, greater use of broad-minded coping strategies at time 1 would not predict a reduction in negative affect from time 1 to time 2.
3. Other approach coping styles would not display the same pattern of results as broad-minded coping.
4. Positive emotions at time 1 would predict increases in positive emotions at time 2, in part as mediated by changes in broad-minded coping from time 1 and time 2.
5. Broad-minded coping at time 1 would predict increases in broad-minded coping at time 2, in part as mediated by changes in positive emotions from time 1 and time 2.
Chapter 2: Method

Data for this study were collected as part of a randomized control trial (RCT) evaluating the effectiveness of a universal social and emotional learning (SEL) program with 4th and 5th grade students. Surveys were administered to students at three time points during one school year (November, March, and June). For the purposes of the present study, only data obtained at midpoint (March) and post-test (June) from students who were randomly assigned to classrooms not receiving the SEL program (i.e., wait-list controls) were included. Note that from herein, for this study, midpoint will be referred to as T1 and post-test will be referred to as T2.

Participants

Participants included 128 (48% female) 4th and 5th grade students recruited from six classrooms in a large, urban, and multicultural public elementary school district in Western Canada representing a diverse range of socioeconomic statuses. After excluding students who did not complete all of the measures at both time points (3 moved; 15 absent at one time point; 11 did not assent at one time point), the final sample included 96 students (48% female; \( M = 9.8 \) years; \( SD = .57 \), Range, 8.93 to 10.89 years). Further examination of participant’s who did not assent to participate did not identify any patterns: the majority reported living full time with two parents, reporting English as their first language learned, and rating their ability to read English as “easy” or “very easy”.

Regarding first language learned, 79% of students reported English as their first language learned, 6% Mandarin, 3% Cantonese, 3% Korean, 4% reported one of a few other languages (e.g., Japanese, Punjabi, Spanish, and Vietnamese), and 5% reported Other (e.g., German, Polish, Italian). The range of languages in this sample is reflective of the cultural and ethnic diversity of the Western Canadian city where the research study took place.
With regards to family composition, 81% reported living fulltime with two parents (e.g., mother & father, mother & stepfather), and 19% reported other combinations (e.g., part time mother and father plus stepmother, grandmother only, mother only, and foster parents). Of the students recruited for participation, 92% received parental consent and gave their own consent.

Participants’ ratings of their ability to read English were considered. Five students who rated their ability to read English as “very hard” or “hard” on at least one time point and were examined. The five participants who rated their ability to read English as “hard” (none rated selected the “very hard” rating) only did so at only one time point, and rated their ability to read English as “easy” or “very easy” at the other time point. Further examination of the individual participants, through notes taken during data collection (e.g., if participant needed extra assistance while filling out the survey or required a scribe), did not identify any reasons to suspect participants would be struggling with comprehension. Furthermore, because survey questions were read aloud to all participants during survey administration, it was decided that none of these participants should be omitted from the study.

Procedure

Ethics approval to conduct the present study was obtained from the University of British Columbia’s Behavioural Research Ethics Board. After receiving ethics approval, permission to conduct research in the school district was obtained from the school board. Schools were then contacted by the Principal Investigator to request participation in the study. Once teachers were recruited, the Principal Investigator and/or research assistants visited each school to explain the study to students in child-friendly language, answer any questions that they had, and to distribute parental/guardian consent forms.

Teacher consent (Appendix A), parental/guardian consent (Appendix B), and student
assent (Appendix C) were obtained from all participants. The consent forms explained the purpose of the study: to investigate the effectiveness of an intervention program designed to enhance student social and emotional competencies. It also explained that participating in the study would involve completing a questionnaire at three time-points throughout the school year and that all responses and identities would be kept confidential.

Trained research assistants administered the questionnaires to students in their classrooms during one 50-minute class period. All items on the questionnaires were read aloud to students by one of the graduate student research assistants to control for differences in reading ability. Students were encouraged to answer honestly and to ask any questions if they did not understand any of the questions or items on the instruments. Students were informed that their responses would be kept confidential, and only the researchers, not the teachers, parents, principal, etc. would see their completed questionnaires. Additional graduate student research assistants were present throughout survey completion to answer questions and provide assistance if individual students needed support reading and/or completing the questionnaire. Participating classrooms received a pizza party at the end of the study.

Measures

Measures for this study were comprised of a battery of self-report measures that students completed for the larger study (See Appendix D). For the purpose of the present study a subset of the measures were included and each are described below.

Student demographics were obtained by asking questions about age, gender, family composition, and first language learned at home (See Appendix D.1). Because the school district in which participants were drawn included a large proportion of students whose first language
was one other than English, students were asked to rate their ability to read English using a 4-point Likert-type scale ranging from (1) “Very hard” to (4) “Very easy.”

Self-report measures were used to examine positive emotions and broad-minded coping via measures assessing affect and coping strategies, respectively. These particular measures were selected because they were believed to be the best, age-appropriate representations of the measures used in Fredrickson and Joiner’s (2002) study.

*Positive and negative emotions.* Students’ positive and negative emotions were assessed using the *Positive and Negative Affect Schedule for Children – Short* (PANAS-C; Ebesutani et al., 2012; Adapted from Laurent et al., 1999; see Appendix D.2) a shortened version of the PANAS-C. The PANAS-C-Short is a 10-item self-report measure used in child and adolescent populations to measure positive affect (PA) and negative affect (NA) factors. The PA subscale consists of five items: happy, cheerful, proud, joyful, and lively. The NA subscale consists of five items: sad, scared, miserable, afraid and mad. Respondents are asked to rate how often they experienced each feeling or emotion (e.g., “Happy” or “Afraid”) over the past few weeks. Items are rated using a five-point Likert-type scale ranging from (1) “Very slightly or not at all” to (5) “A lot/Extremely.” Scores for each subscale are averaged to create two total scores. Higher scores for each subscale indicate greater experiences of PA and NA, respectively (Ebesutani et al., 2012).

Evidence supporting the validity and reliability of the PANAS-C-Short has been documented with samples of children 6 to 18 years-old (Ebesutani et al., 2012). High internal consistency for the PANAS-C short NA factor ($\alpha = .86$), and moderate internal consistency for the PA factor ($\alpha = .85$) were reported (Ebesutani et al., 2012). For the present study Cronbach’s
alpha for the PA subscale at T1 was .711, and .881 at T2. Cronbach’s alpha for the NA subscale at T1 was .618, and .763 at T2.

Broad-minded coping. To assess broad-minded coping, students responded to the Self-Report Coping Scale (SRCS; Causey & Dubow, 1992; see Appendix D.3). The SRCS consists of 34-items based on Roth and Cohen’s (1986) approach/avoidance conceptualization, that assesses the use of five coping strategies with preadolescents in 4th through 6th grade. For the purpose of this study, only the Self-Reliance/Problem Solving (PS) and Seeking Social Support (SS) subscales were used. We focused on the PS subscale because it is the closest representation to how “broad-minded coping” was assessed in Fredrickson and Joiner’s (2002) study. Similar to Fredrickson and Joiner’s (2002) analysis, the SS subscale was included to determine whether other coping styles would show the same pattern as is hypothesized with broad-minded coping.

Each subscale consists of eight items, and respondents are asked to rate how often they use each coping strategy in response to the stem question: “When I have an argument or fight with a friend, I usually…” (Causey & Dubow, 1992). The PS subscale consists of items such as, “Try to think of different ways to solve it” and “Go over in my mind what to do or say,” and the SS subscale consists of items such as “Talk to somebody about how it made me feel” and “Get help from a family member” (Causey & Dubow, 1992). Items are rated using a five-point Likert-type scale ranging from (1) “Never” to (5) “Always.” Scores for each subscale are averaged and create their own score. A higher score indicates more frequent engagement or use of that particular coping method (i.e., a high score for the PS subscale would indicate that the respondent often uses problem solving strategies to cope with the issue of having had a fight with a friend).

Previous research provides support for the reliability and validity of the SRCS (Causey &
Dubow, 1992; Reschly et al., 2008; Roecker-Phelps, 2001). The scale authors report that the internal consistency reliability of the five subscales ranges from 0.68 to 0.84, but did not report each subscales’ alpha coefficient (Causey & Dubow, 1992). Roecker-Phelps (2001) reported alpha coefficients .89 and .82 for the Problem Solving and Seeking Social Support subscales, respectively, and Reschly et al. (2008) reported alpha coefficients of .83 and .85 for the respective subscales. Cronbach’s alpha for the present study for the PS subscale was .887 at T1, and .899 at T2 and .877 at T1 and .897 at T2 for the SS subscale. Factor analytic studies with the SRCS provide support for its five coping strategies and test–retest reliability for a 2-week period ranged from .60 to .73 for the subscales, but did not report reliability for each subscale (Causey & Dubow, 1992).
Chapter 3: Results

Overview

The purpose of the present study was to test Fredrickson’s (1998, 2001) broaden-and-build theory in a sample of early adolescents. The following questions were put forth: Does experiencing positive emotions (but not negative emotions) improve the use of broad-minded coping strategies over time? Does using more broad-minded coping strategies increase the experience of positive emotions (but not decrease negative emotions) over time? Additionally, are changes in broad-minded coping one of the mechanisms through which positive emotions increases over time? Finally, are changes in positive emotions one of the mechanisms through which broad-minded coping increases over time? To answer these research questions, a series of analyses were conducted which are organized into three main sections: preliminary analyses, regression analyses, and mediation analyses, each of which are discussed in turn, in the following pages.

First, preliminary analyses were run to test the assumptions for linear regression analysis, to investigate age and gender differences for the predictor and outcome variables, to compute the central tendencies, variability, and distributional qualities of the variables of interest, and to examine intercorrelations among variables. Second, a series of hierarchical regression analyses were conducted to investigate whether positive emotions were a predictor of broad-minded coping and vice versa. Finally, meditational analyses were conducted to examine the potential mediating roles of broad-minded coping and positive emotions for increasing positive emotions and broad-minded coping, respectively.

As there were five hypotheses that were tested, a restatement of each hypothesis, description of the analyses, and accompanying results are reported separately for each
hypothesis. It is important to note that equivalent analyses to the ones reported in Fredrickson and Joiner’s (2002) study were followed and reported.

**Preliminary Results**

Preliminary analyses were conducted to ensure the data did not violate any assumptions for linear regression and mediation analyses, and to explore correlations among variables. Analyses confirmed that the assumptions for linear regression and mediation were met: the data contained no outliers; the assumption of collinearity indicated that multicollinearity was not a concern; the assumption of independent errors was met; the data contained approximately normally distributed errors, as did the normal P-P plots of standardized residuals, which showed points that were not completely on the line, but close; and the scatterplots of standardized predicted values showed that the data met the assumptions of homogeneity of variance and linearity.

Once data were collected, preliminary sequential block regression analyses were run to investigate age and gender as predictors. As reported in Fredrickson and Joiner’s (2002) study, results from these preliminary analyses did not indicate that either age or gender were statistically significant predictors for this model (see Table 3.1 and 3.2). Though initial analyses indicated that gender was a significant predictor when both variables were entered in the model, further analyses with gender alone did not indicate that it was a significant predictor for this model (Table 3.2) and therefore both variables were excluded.
Table 3.1 *Coefficient Values for Age and Gender as a Predictor in the Model for Hypotheses 1 and 2*

<table>
<thead>
<tr>
<th>Hypothesis</th>
<th>( b )</th>
<th>( \beta )</th>
<th>( p )</th>
</tr>
</thead>
<tbody>
<tr>
<td>Does PA (but not NA) predict improved PS?</td>
<td>0.125/0.308</td>
<td>0.083/0.182</td>
<td>.336/.045*</td>
</tr>
<tr>
<td>Does PS predict increased PA (but not reduced NA)?</td>
<td>0.088/-0.006</td>
<td>0.054/-0.003</td>
<td>.502/.971</td>
</tr>
<tr>
<td>(IV: PA)</td>
<td>-0.025/0.114</td>
<td>-0.021/0.085</td>
<td>.814/.359</td>
</tr>
</tbody>
</table>

*Note.* *p* < .05

Table 3.2 *Coefficient Values for Gender as a Predictor in the Model for Hypotheses 1 and 2*

<table>
<thead>
<tr>
<th>Hypothesis</th>
<th>( b )</th>
<th>( \beta )</th>
<th>( p )</th>
</tr>
</thead>
<tbody>
<tr>
<td>Does PA (but not NA) predict improved PS?</td>
<td>0.287</td>
<td>0.170</td>
<td>.059</td>
</tr>
<tr>
<td>Does PS predict increased PA (but not reduced NA)?</td>
<td>-0.020</td>
<td>-0.011</td>
<td>.894</td>
</tr>
<tr>
<td>(IV: PA)</td>
<td>0.119</td>
<td>0.088</td>
<td>.332</td>
</tr>
<tr>
<td>Does PS predict increased PA (but not reduced NA)?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(IV: NA)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Means, standard deviations, range, and minimum and maximum ratings for PA, NA, PS, and SS are reported in Table 3.3. The mean affect scores showed that participants tended to report experiencing more positive affect than negative affect. This was not unexpected, as students at this age have reported feeling quite optimistic and positive about themselves (Schonert-Reichl, 2011) and people in North America tend to report a positive level of subjective well-being, or being mildly happy (Lyubomirsky et al., 2005). The means for PA and NA are similar to those reported in other research with this age group (Ebesutani, Okamura, Higa-McMillan, & Chorpita, 2011). Students indicated moderate use of both PS and SS coping strategies and the means for these scales were similar to those found in other studies (Causey & Dubow, 1992; Reschly et al., 2008; Roecker-Phelps, 2001).

<table>
<thead>
<tr>
<th>Variable Entered</th>
<th>Mean</th>
<th>Standard Deviation</th>
<th>Range</th>
<th>Minimum</th>
<th>Maximum</th>
</tr>
</thead>
<tbody>
<tr>
<td>Time 1 Positive Affect</td>
<td>3.806</td>
<td>0.714</td>
<td>2.80</td>
<td>2.20</td>
<td>5.00</td>
</tr>
<tr>
<td>Time 1 Negative Affect</td>
<td>1.735</td>
<td>0.590</td>
<td>2.50</td>
<td>1.00</td>
<td>3.50</td>
</tr>
<tr>
<td>Time 1 Problem Solving</td>
<td>3.527</td>
<td>0.806</td>
<td>4.00</td>
<td>1.00</td>
<td>5.00</td>
</tr>
<tr>
<td>Time 1 Social Support Seeking</td>
<td>3.420</td>
<td>0.881</td>
<td>4.00</td>
<td>1.00</td>
<td>5.00</td>
</tr>
<tr>
<td>Time 2 Positive Affect</td>
<td>3.842</td>
<td>0.910</td>
<td>3.60</td>
<td>1.40</td>
<td>5.00</td>
</tr>
<tr>
<td>Time 2 Negative Affect</td>
<td>1.707</td>
<td>0.676</td>
<td>3.20</td>
<td>1.00</td>
<td>4.20</td>
</tr>
<tr>
<td>Time 2 Problem Solving</td>
<td>3.481</td>
<td>0.850</td>
<td>4.00</td>
<td>1.00</td>
<td>5.00</td>
</tr>
<tr>
<td>Time 2 Social Support Seeking</td>
<td>3.301</td>
<td>0.933</td>
<td>4.00</td>
<td>1.00</td>
<td>5.00</td>
</tr>
</tbody>
</table>

*Note.* Possible maximum value for all of the scales listed above is from 1 to 5.
Intercorrelations were conducted to ensure that each of the predictors were at least moderately correlated with their corresponding outcome variable, but were not too highly intercorrelated themselves. Pearson correlations for all variables included in the analysis of PA, NA, and PS, are presented in Table 3.4. As can be seen, PA and PS were positively and significantly correlated with each other, signifying that a higher PA rating is associated with a higher PS rating. These patterns held true from T1 to T2. There was a negative correlation between NA and PS, signifying that a higher NA rating is associated with a lower PS rating, and that a higher PS rating is associated with a lower NA rating. This pattern held true from T1 to T2. Also, there was a positive significant correlation between PA and SS, signifying that a higher PA rating is associated with a higher SS rating. These patterns held true from T1 to T2. There was a negative correlation between NA and SS, signifying that a higher NA rating is accompanied with a lower SS rating, and that a high SS rating is accompanied with a lower NA rating. This pattern held true from T1 to T2.
Table 3.4 *Pearson Product-Moment Correlations Between Affect and Coping Measures*

<table>
<thead>
<tr>
<th>Variables Entered</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Time 1 Positive Affect</td>
<td>--</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Time 1 Negative Affect</td>
<td>-0.193</td>
<td>--</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Time 1 Problem Solving</td>
<td>0.387**</td>
<td>-0.286**</td>
<td>--</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Time 1 Social Support Seeking</td>
<td>0.317**</td>
<td>-0.163</td>
<td>0.681**</td>
<td>--</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Time 2 Positive Affect</td>
<td>0.626**</td>
<td>-0.264**</td>
<td>0.391**</td>
<td>0.357**</td>
<td>--</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. Time 2 Negative Affect</td>
<td>-0.092</td>
<td>0.508</td>
<td>-0.065</td>
<td>0.114</td>
<td>-0.173</td>
<td>--</td>
<td></td>
</tr>
<tr>
<td>7. Time 2 Problem Solving</td>
<td>0.408**</td>
<td>-0.282**</td>
<td>0.499**</td>
<td>0.520**</td>
<td>0.558**</td>
<td>-0.168</td>
<td>--</td>
</tr>
<tr>
<td>8. Time 2 Social Support Seeking</td>
<td>0.319**</td>
<td>-0.144</td>
<td>0.386**</td>
<td>0.618**</td>
<td>0.417**</td>
<td>-0.248*</td>
<td>0.741**</td>
</tr>
</tbody>
</table>

*Note. **p < .01*
**Regression Analyses**

In the present study, in an effort to match what was reported by Fredrickson and Joiner (2002), partial correlations were the focus for estimating and interpreting the relationship between each predictor and the outcome variable. While the rationale for reporting partial correlations was not indicated by the authors, when compared to beta weights, partial correlations are easier to use when comparing across different samples and measures, and for interpreting the size of the effect. As such, Cohen’s (1988) conventions for interpreting effect size were used, where a partial correlation coefficient of .10 represents a small correlation; .30 describes a medium correlation; and .50 or larger is considered a large correlation.

**Hypothesis 1.** It was hypothesized that T1 PA (but not T1 NA) would predict increases in PS from T1 to T2. To test this hypothesis, a set of sequential block regression models was constructed. First, T2 PS was entered as the dependent variable, and T1 PS was entered into Block 1. Block 1 also created the residual change score for PS and controlled for T1 PS. Next, T1 PA and T1 NA were entered into Block 2 as predictors. Unstandardized regression coefficients ($b$) and standardized regression coefficients ($\beta$), as well the $F$, $df$, and $R^2$ for each Block, and $t$, $p$, and partial correlations ($pr$) for each predictor, are presented in Table 3.5.

As hypothesized, results from this analysis indicated that T1 PA, but not T1 NA, predicted increases in PS from T1 to T2. Such that, T1 PA was associated with increased PS scores ($pr = .258$, $t(96) = 2.557$, $p = .012$), and T1 NA was not significantly associated with increased PS ($pr = -.148$, $t(96) = -1.437$, $p = .154$). This suggests a small effect of PA. Relatedly, Fredrickson and Joiner (2002), reported a slightly smaller effect size for T1 PA ($pr = .19$), $t(134) = 2.25$, $p < .05$. 
**Hypothesis 2.** It was hypothesized that greater use of PS at T1 would predict an increase in PA from T1 to T2 (but not a decrease in NA). A set of sequential block regression models was constructed to test increases in PA. Unstandardized regression coefficients ($b$) and standardized regression coefficients ($\beta$), as well the $F$, $df$, and $R^2$ for each Block, and $t$, $p$, and partial correlations ($pr$) for each predictor, are presented in Table 3.6 and Table 3.7.

In the first set of sequential block regression models, T2 PA was entered as the dependent variable, and T1 PA was entered into Block 1, creating a residual change score and controlling for T1 PA. Next, T1 PS was entered into Block 2 as the predictor. In the second set of hierarchical regression models, T2 NA was entered as the dependent variable, and T1 NA was entered into Block 1, creating a residual change score and controlling for T1 NA. Next, T1 PS was entered into Block 2 as the predictor.

As hypothesized, results indicated that T1 PS predicted an increase in PA from T1 to T2, such that, T1 PS was associated with increased PA ($pr = .207, t(96) = 2.039, p = .044$). This suggests a small effect of PS. Conversely, T1 PS did not predict a decrease in NA from T1 to T2 ($pr = .098, t(96) = 0.945, p = .347$). Fredrickson and Joiner (2002), however, reported a medium effect size for T1 broad-minded coping predicting PA ($pr = .32, t(135) = 3.83, p < .05$), and no significant relation for T1 broad-minded coping predicting NA ($pr = .07, t(135) = 0.82, n.s.$).

Taken together, results from these three regression equations indicate that the experiences of frequent PA, but not NA, relate to PS, and Cohen’s effect size values suggest a small practical significance for each of the hypotheses.
Table 3.5 Sequential Block Regression Assessing Time 1 Positive Affect Predicting Time 2 Problem Solving

<table>
<thead>
<tr>
<th>Variables Entered</th>
<th>$b$</th>
<th>$\beta$</th>
<th>$F$ for Block</th>
<th>$t$ for Predictors</th>
<th>$df$</th>
<th>$p$</th>
<th>Partial Correlation ($pr$)</th>
<th>$R^2$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Block 1</td>
<td>1.622</td>
<td></td>
<td>31.231</td>
<td>4.758</td>
<td>1, 94</td>
<td>&lt; .001</td>
<td>.249</td>
<td></td>
</tr>
<tr>
<td>Time 1 Problem Solving</td>
<td>0.527</td>
<td>0.499</td>
<td>5.588</td>
<td>&lt; .001</td>
<td></td>
<td>.499</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Block 2</td>
<td>1.343</td>
<td></td>
<td>14.350</td>
<td>2.402</td>
<td>3, 92</td>
<td>.018</td>
<td>.319</td>
<td></td>
</tr>
<tr>
<td>Time 1 Problem Solving</td>
<td>0.390</td>
<td>0.369</td>
<td>3.849</td>
<td>&lt; .001</td>
<td></td>
<td>.372</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Time 1 Positive Affect</td>
<td>0.286</td>
<td>0.240</td>
<td>2.557</td>
<td>.012</td>
<td></td>
<td>.258</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Time 1 Negative Affect</td>
<td>-0.187</td>
<td>-0.130</td>
<td>-1.437</td>
<td>.154</td>
<td></td>
<td>-.148</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 3.6 Sequential Block Regression Assessing Time 1 Problem Solving Predicting Time 2 Positive Affect

<table>
<thead>
<tr>
<th>Variables Entered</th>
<th>$b$</th>
<th>$\beta$</th>
<th>$F$ for Block</th>
<th>$t$ for Predictors</th>
<th>$df$</th>
<th>$p$</th>
<th>Partial Correlation ($pr$)</th>
<th>$R^2$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Block 1</td>
<td>0.801</td>
<td></td>
<td>60.728</td>
<td>2.019</td>
<td>1, 94</td>
<td>.046</td>
<td>.392</td>
<td></td>
</tr>
<tr>
<td>Time 1 Positive Affect</td>
<td>0.799</td>
<td>0.626</td>
<td>7.793</td>
<td>&lt; .001</td>
<td></td>
<td>.626</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Block 2</td>
<td>0.433</td>
<td></td>
<td>33.462</td>
<td>1.007</td>
<td>2, 93</td>
<td>.316</td>
<td>.418</td>
<td></td>
</tr>
<tr>
<td>Time 1 Positive Affect</td>
<td>0.713</td>
<td>0.559</td>
<td>6.516</td>
<td>&lt; .001</td>
<td></td>
<td>.560</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Time 1 Problem Solving</td>
<td>0.197</td>
<td>0.175</td>
<td>2.039</td>
<td>.044</td>
<td></td>
<td>.207</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Table 3.7 Sequential Block Regression Assessing Time 1 Negative Affect Predicting Time 2 Negative Affect

<table>
<thead>
<tr>
<th>Variables Entered</th>
<th>$b$</th>
<th>$\beta$</th>
<th>$F$ for Block</th>
<th>$t$ for Predictors</th>
<th>$df$</th>
<th>$p$</th>
<th>Partial Correlation ($pr$)</th>
<th>$R^2$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Block 1</td>
<td>0.696</td>
<td></td>
<td>32.775</td>
<td>3.733</td>
<td>1, 94</td>
<td>&lt; .001</td>
<td>.259</td>
<td></td>
</tr>
<tr>
<td>Time 1 Negative Affect</td>
<td>0.583</td>
<td>0.508</td>
<td></td>
<td>5.725</td>
<td></td>
<td>&lt; .001</td>
<td>.508</td>
<td></td>
</tr>
<tr>
<td>Block 2</td>
<td>0.387</td>
<td></td>
<td>16.816</td>
<td>1.027</td>
<td>2, 93</td>
<td>.307</td>
<td>.266</td>
<td></td>
</tr>
<tr>
<td>Time 1 Negative Affect</td>
<td>0.611</td>
<td>0.534</td>
<td></td>
<td>5.753</td>
<td></td>
<td>&lt; .001</td>
<td>.512</td>
<td></td>
</tr>
<tr>
<td>Time 1 Problem Solving</td>
<td>0.074</td>
<td>0.088</td>
<td></td>
<td>.945</td>
<td></td>
<td>.347</td>
<td>.098</td>
<td></td>
</tr>
</tbody>
</table>
Hypothesis 3. It was hypothesized that social support seeking, the other approach coping style from the SRCS, would not display the same pattern of results as broad-minded coping. All of the previous sequential block regression analyses were repeated with the SS subscale of the SRCS (Causey & Dubow, 1992). Fredrickson and Joiner (2002), tested whether the selected specific coping subscale (Cognitive Analysis) was an index of broad-minded coping by running all of the same analyses with each of the seven other subscales of the CRI (Moos, 1988). They confirmed that only the Cognitive Analysis subscale conformed to the predicted broaden-and-build pattern. Given that other studies with adolescents (Reschly et al., 2008) have found that the SS subscale of the SRCS (Causey & Dubow, 1992) showed similar patterns to that of the broaden-and-build theory, and the SS subscale was selected for analyses in the present study.

As shown in Table 3.8, neither PA or NA were associated with increases in SS. Specifically, T1 PA was not associated with increases in T2 SS (pr = .159, t(96) = 1.544, p = .126), and T1 NA was not associated with increases in T2 SS (pr = -.031, t(96) = -0.296, p = .768). Similar to the results from the PS subscale, SS was associated with increased PA, but not NA (refer to Table 3.9 and 3.10). Specifically, T1 SS was associated with increased T2 PA (pr = .215, t(96) = 2.120, p = .037), but T1 SS was not associated with decreased T2 NA (pr = -.036, t(96) = -0.349, p = .728).

Taken together, SS does not show the same pattern of coping as seen with the PS subscale. While Fredrickson and Joiner (2002) did not report the results of these analyses they did note that the Emotional Discharge and Seeking Counsel subscales which were either predicted or were predicted by PA, did not show that same pattern of results because neither was related to PA but not NA, and this was seen with the SS subscale used in the current study.
### Table 3.8 Sequential Block Regression Assessing Time 1 Positive Affect Predicting Time 2 Seeking Social Support

<table>
<thead>
<tr>
<th>Variables Entered</th>
<th>$b$</th>
<th>$\beta$</th>
<th>$F$ for Block</th>
<th>$t$ for Predictors</th>
<th>$df$</th>
<th>$p$</th>
<th>Partial Correlation ($pr$)</th>
<th>$R^2$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Block 1</td>
<td>1.063</td>
<td>58.086</td>
<td>3.508</td>
<td>1, 94</td>
<td>&lt; .001</td>
<td></td>
<td>.375</td>
<td></td>
</tr>
<tr>
<td>Time 1 Seeking Social Support</td>
<td>0.654</td>
<td>0.618</td>
<td>7.621</td>
<td></td>
<td>&lt; .001</td>
<td></td>
<td>0.618</td>
<td></td>
</tr>
<tr>
<td>Block 2</td>
<td>0.636</td>
<td>20.390</td>
<td>1.154</td>
<td>3, 92</td>
<td>.252</td>
<td></td>
<td>.399</td>
<td></td>
</tr>
<tr>
<td>Time 1 Seeking Social Support</td>
<td>0.606</td>
<td>0.572</td>
<td>6.674</td>
<td></td>
<td>&lt; .001</td>
<td></td>
<td>0.571</td>
<td></td>
</tr>
<tr>
<td>Time 1 Positive Affect</td>
<td>0.174</td>
<td>0.133</td>
<td>1.544</td>
<td></td>
<td>.126</td>
<td></td>
<td>0.159</td>
<td></td>
</tr>
<tr>
<td>Time 1 Negative Affect</td>
<td>-0.039</td>
<td>-0.025</td>
<td>-0.296</td>
<td></td>
<td>.768</td>
<td></td>
<td>-0.031</td>
<td></td>
</tr>
</tbody>
</table>

### Table 3.9 Sequential Block Regression Assessing Time 1 Social Support Seeking Predicting Time 2 Positive Affect

<table>
<thead>
<tr>
<th>Variables Entered</th>
<th>$b$</th>
<th>$\beta$</th>
<th>$F$ for Block</th>
<th>$t$ for Predictors</th>
<th>$df$</th>
<th>$p$</th>
<th>Partial Correlation ($pr$)</th>
<th>$R^2$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Block 1</td>
<td>0.801</td>
<td>60.728</td>
<td>2.019</td>
<td>1, 94</td>
<td>.046</td>
<td></td>
<td>.392</td>
<td></td>
</tr>
<tr>
<td>Time 1 Positive Affect</td>
<td>0.799</td>
<td>0.626</td>
<td>7.793</td>
<td></td>
<td>&lt; .001</td>
<td></td>
<td>.626</td>
<td></td>
</tr>
<tr>
<td>Block 2</td>
<td>0.449</td>
<td>33.739</td>
<td>1.060</td>
<td>2, 93</td>
<td>.292</td>
<td></td>
<td>.420</td>
<td></td>
</tr>
<tr>
<td>Time 1 Positive Affect</td>
<td>0.728</td>
<td>0.571</td>
<td>6.857</td>
<td></td>
<td>&lt; .001</td>
<td></td>
<td>.580</td>
<td></td>
</tr>
<tr>
<td>Time 1 Social Support Seeking</td>
<td>0.182</td>
<td>0.176</td>
<td>2.120</td>
<td></td>
<td>.037</td>
<td></td>
<td>.215</td>
<td></td>
</tr>
</tbody>
</table>
Table 3.10 Sequential Block Regression Assessing Time 1 Negative Affect Predicting Time 2 Negative Affect

<table>
<thead>
<tr>
<th>Variables Entered</th>
<th>$b$</th>
<th>$\beta$</th>
<th>$F$ for Block</th>
<th>$t$ for Predictors</th>
<th>$df$</th>
<th>$p$</th>
<th>Partial Correlation ($pr$)</th>
<th>$R^2$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Block 1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Time 1 Negative Affect</td>
<td>0.696</td>
<td>0.583</td>
<td>32.775</td>
<td>3.733</td>
<td>1, 94</td>
<td>&lt; .001</td>
<td>0.259</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Block 2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Time 1 Negative Affect</td>
<td>0.789</td>
<td>0.577</td>
<td>16.295</td>
<td>2.421</td>
<td>2, 93</td>
<td>.017</td>
<td>0.259</td>
<td></td>
</tr>
<tr>
<td>Time 1 Social Support Seeking</td>
<td>-0.024</td>
<td>-0.032</td>
<td>-0.349</td>
<td>.728</td>
<td></td>
<td>-0.036</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Mediation Analyses

The approach used in the present study tested mediation through the estimation and interpretation of the direct and indirect effects, along with a single inferential test of the indirect effect (see Figure 3.1 for a diagram of a simple mediation model). An estimate of the total effect will be reported, although a statistically significant total effect is not a prerequisite for searching for evidence of indirect effects. While Fredrickson and Joiner (2002) used Kenny, Kashy, and Bolger’s (1998) four step causal approach, followed by a calculation of the indirect effect sizes, this approach has been criticized heavily on multiple grounds (Mackinnon, Lockwood, Hoffman, West, & Sheets, 2002; MacKinnon, Lockwood, & Williams, 2004; Preacher & Hayes, 2004), and as such was not selected for use in the present study.

To get an estimate of the basic components of the indirect effect, a set of regression models was constructed using the ordinary least squares (OLS) method: the effect of the independent variable (IV) on the mediator variable (MV) is represented in path $a$, and the effect of the MV on dependent variable (DV) is represented in path $b$ (see Figure 3.1). To test the total effect (path $c$), direct effect (path $c'$), and indirect effect ($ab$) (see Figure 3.1), the bootstrapping technique was used, as it is able to calculate confidence intervals. In the present study, 1000 bootstrap samples for bias-corrected confidence intervals (BC CI) were selected. In these analyses, mediation is significant if the coefficient is not zero and the 95% BC CI for the indirect effect does not include zero (Preacher & Hayes, 2004; Preacher et al., 2007). It is important to note that because bootstrap samples are based on random resampling of the data, the end points of the confidence intervals are not fixed quantities; therefore, confidence intervals will be slightly different each time the same data is analyzed. To measure effect size for the indirect effect, Preacher and Kelly’s (2011) Kappa-Squared ($\kappa^2$) was used. For the $\kappa^2$ measure of effect
size, $\kappa^2$ is bound between 0 and 1, with a value closer to 1 representing a bigger indirect effect. $R^2$ conventions for interpreting $\kappa^2$ effect sizes are used, where a $\kappa^2$ effect size of .01 represents a small effect, .09 represents a medium effect, and a large effect is in the region of .25 (Preacher & Kelley, 2011).

Figure 3.1 Example of simple mediation model
Hypothesis 4. It was hypothesized that the predictive relationship between T1 PA and T2 PA would be partially mediated by changes in PS. Estimation of the indirect effect and its confidence intervals using bootstrap methods was used to investigate the hypothesis that changes in PS mediate the predictive relationship between T1 PA and T2 PA. Using Hayes’ PROCESS macro v2.16 add-on for SPSS, Residual PS (the residual of T2 PS regressed on T1 PS) was entered as the mediator, T1 PA was entered as the independent variable, and T2 PA was entered as the outcome variable. A diagram of the mediation model is presented in Figure 3.2 and the regression analysis is summarized in Table 3.11

<table>
<thead>
<tr>
<th></th>
<th>Consequent</th>
<th>Antecedent</th>
<th>Coeff.</th>
<th>SE</th>
<th>p</th>
<th>Coeff.</th>
<th>SE</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>MV (CH PS)</td>
<td>IV (T1 PA)</td>
<td>a</td>
<td>0.256</td>
<td>0.103</td>
<td>.015</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>MV (CH PS)</td>
<td>____</td>
<td>___</td>
<td>___</td>
<td>b</td>
<td>0.347</td>
<td>0.097</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Constant</td>
<td>i₁</td>
<td>-0.972</td>
<td>0.399</td>
<td>.017</td>
<td>i₂</td>
<td>1.138</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>R²</td>
<td>0.061</td>
<td>R²</td>
<td>0.466</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>F(1, 94)</td>
<td>6.136, p = .150</td>
<td>F(2, 93)</td>
<td>40.650, p &lt; .001</td>
<td></td>
</tr>
</tbody>
</table>
To estimate the predictive effects of T1 PA ratings on T2 PA ratings, directly as well as indirectly through changes in PS, the unstandardized coefficients of two linear models were generated using OLS regression. As can be seen in Figure 3.2 and Table 3.11, participants’ ratings of T1 PA positively predicted changes in PS ($a = 0.256, p = .015$) and changes in PS positively predicted T2 PA while controlling for T1 PA ($b = 0.347, p = .001$). A BC CI for the unstandardized indirect effect of T1 PA ($ab = 0.089$) using 1000 bootstrap samples was 0.032 to 0.187, and the standardized indirect effect was $ab = 0.070$, BC CI [0.026 to 0.134], indicating that there was evidence of an indirect effect of T1 PA predicting T2 PA through changes in PS.
In addition, the direct effect of T1 PA ratings predicting T2 PA ratings of $c' = 0.710$ was statistically significant ($p < .001$). The total effect of T1 PA ratings predicting T2 PA ratings, including changes in PS, was also statistically significant ($c = 0.799, p < .001$). Results from the $\kappa^2$ effect size test indicated that there was a medium effect, $\kappa^2 = 0.089, 95\%$ BC CI $[0.035, 0.167]$. Meaning that the indirect effect of changes in PS on T2 PA is around 9% of its maximum possible value. In sum, there is evidence for a significant mediation effect. Specifically, participants who indicated higher scores of T1 PA were more likely to report positive increases in their scores on PS, and through more positive increases in their scores on PS, more likely to score higher on T2 PA.

Although a different data analytic method for mediation was used by, Fredrickson and Joiner (2002) reported that T1 PA remained a significant predictor of T2 PA when changes in the broad-minded coping variable were controlled for ($pr = .45), t(135) = 5.82, p < .05$. They reported a significant indirect effect, .16, $t(135) < 3.28, p = .05$, but did not identify which convention of interpreting effect sizes they used.

**Hypothesis 5.** It was hypothesized that T1 PS would predict T2 PS, partly as a function of mediated change in PA. As explained above, estimation of the indirect effect and its confidence interval using bootstrap methods was used to investigate the hypothesis that changes in PA mediates the predictive relationship between T1 PS and T2 PS. Using Hayes’ Process Procedure for SPSS, the variable Residual PA (the residual of T2 PA regressed on T1 PA) was entered as the mediator, T1 PS was entered as the independent variable, and T2 PS was entered as the outcome variable. A diagram of the mediation model is presented is Figure 3.3 and the regression analysis is summarized in Table 3.12.
Table 3.12 Model Coefficients for Time 1 Problem Solving (T1 PS) to Time 2 Problem Solving (T2 PS) Through the Mediated Effect of Changes in Positive Affect (CH PA)

<table>
<thead>
<tr>
<th></th>
<th>MV (CH PA)</th>
<th></th>
<th></th>
<th>DV (T2 PS)</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Coeff.</td>
<td>SE</td>
<td>p</td>
<td>Coeff.</td>
<td>SE</td>
<td>p</td>
</tr>
<tr>
<td>Antecedent</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>IV (T1 PS)</td>
<td>a</td>
<td>0.170</td>
<td>0.089</td>
<td>.059</td>
<td>c’</td>
<td>0.465</td>
</tr>
<tr>
<td>MV (CH PA)</td>
<td></td>
<td></td>
<td></td>
<td>b</td>
<td>0.367</td>
<td>0.103</td>
</tr>
<tr>
<td>Constant</td>
<td>i_1</td>
<td>-0.600</td>
<td>0.322</td>
<td>.066</td>
<td>i_2</td>
<td>1.842</td>
</tr>
<tr>
<td></td>
<td>R^2</td>
<td></td>
<td></td>
<td>R^2</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>= 0.037</td>
<td></td>
<td></td>
<td>= 0.339</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>F(1, 94)</td>
<td>3.651</td>
<td>.059</td>
<td>F(2, 93)</td>
<td>23.889</td>
<td>&lt; .001</td>
</tr>
</tbody>
</table>

Figure 3.3 Simple Mediation Model for Time 1 Problem Solving as a Predictor of Time 2 Problem Solving, Mediated by Residual Changes in Positive Affect. The confidence interval for the indirect effect is a BC CI based on 1000 samples.
To estimate the effects of T1 PS ratings predicting T2 PS ratings, directly as well as indirectly through changes in PA, the unstandardized coefficients of two linear models were generated using OLS regression. As can be seen in Figure 3.3 and Table 3.12, participants’ ratings of T1 PS positively predicted changes in PA \((a = 0.170, p = .059)\) and changes in PA positively predicted T2 PS while controlling for T1 PS \((b = 0.367, p = .001)\). A bias-corrected bootstrap confidence interval for the unstandardized indirect effect of T1 PS \((ab = 0.062)\) using 1000 bootstrap samples was -0.001 to 0.160, and the standardized indirect effect was \(ab = 0.059\), BC CI [-0.000 to 0.151]. The direct effect of T1 PS ratings predicting T2 PS ratings of \(c' = 0.465\) was statistically significant \((p < .001)\). The total effect of T1 PS ratings predicting T2 PS ratings, including changes in PA was also statistically significant \((c = 0.527, p < .001)\). Results from the \(\kappa^2\) effect size test indicated that there was a small effect, \(\kappa^2 = 0.068, 95\% \text{ BC CI } [0.007, 0.167]\). Meaning that the indirect effect of changes in PS on T2 PA is around 7\% of its maximum possible value.

Given that the lower bound BC CI for both the unstandardized and standardized indirect effect are so close to zero, and the CI’s are only reported to the fourth decimal place, and that the \(\kappa^2\) effect size was significant, there is evidence for a significant mediation effect of T1 PS on T2 PS through changes in PA.

Although a different data analytic method for mediation was used, Fredrickson and Joiner (2002) reported that the T1 broad-minded coping variable remained a significant predictor of the T2 broad-minded coping variable, when changes in PA were controlled for \((pr = .54), t(135) < 7.37, p < .05\). They reported a significant indirect effect \(.16, t(135) < 3.28, p < .05\), but did not identify which convention of interpreting effect sizes they used. Taken together, results from the
two mediation analyses indicate that changes in PA over time are partially explained by PS, and changes in PS over time are partially explained by PA.
Chapter 4: Discussion

With growing research and interest in identifying variables and mechanisms that play a role in fostering and promoting healthy social and emotional development during early adolescence (Huebner et al., 2009; Panter-Brick & Leckman, 2013; Schonert-Reichl, 2008), there is a need to examine the role that positive emotions and coping strategies play in building resilience. In the present study, the broaden-and-build theory was tested with a sample of early adolescents in 4th and 5th grade. Following an empirical strategy similar to that which Fredrickson and Joiner (2002) reported in their study assessing the broaden-and-build theory, the results that emerged essentially replicated those found by Fredrickson and Joiner and offer support for the role of positive emotions in building resilience through broadened coping during early adolescence. In the following section, the results and strengths of the study are discussed in relation to the theory and research on positive emotions and coping in early adolescents and adults, as well as methodological issues regarding the measurement of the broaden-and-build theory. This will be followed by a discussion of the limitations of this research and suggested future directions.

Testing the Broaden-and-Build Theory

First, results from a series of regression analyses provide preliminary support for the notion that the experiences of frequent positive emotions, but not negative emotions, relate to broadened thinking and actions (operationalized in the present study as problem solving coping strategies). As hypothesized, results indicated: (1) initial experiences of positive emotions predicted improvements in broad-minded coping from T1 to T2, and that the pattern was specific to increases in positive emotions (decreases in negative emotions did not predict an increase in broad-minded coping), (2) initial levels of broad-minded coping predicted increases in positive
emotions over time, and the pattern was specific to increases in positive emotions (increases in broad-minded coping did not predict decreases in negative emotions), and (3) that social support seeking as a coping strategy did not show the same pattern of prediction for positive emotions and negative emotions.

In addition, results from the set of simple mediation analyses provide evidence for the notion of a reciprocal relationship between positive emotions and broadened coping strategies, leading to future well-being. As hypothesized, results indicated: (1) the increases in positive emotions from T1 and T2 were mediated by changes in broad-minded coping strategies, and (2) the increases in broad-minded coping strategies from T1 to T2 were mediated by changes in positive emotions. Taken together, these results suggest that positive emotions play a unique role in early adolescents’ thought-action repertoires by broadening their thoughts and actions, and that these relationships exist over time.

These results are similar to those found in samples of adults testing the broaden-and-build theory (Burns et al., 2008; Fredrickson & Joiner, 2002). As you will recall, Fredrickson and Joiner (2002) surveyed 138 undergraduates at two time-points, five weeks apart. Participants responded to two self-report questionnaires assessing positive and negative affect and broad-minded coping. Results indicated that initial positive affect, but not negative affect, predicted improved broad-minded coping, and initial broad-minded coping predicted later positive, but not negative, affect. This pattern did not hold with other coping strategies (e.g., social support seeking, positive reframing). Furthermore, broad-minded coping partially mediated increases in positive affect over time, and positive affect partially mediated increases in broad-minded coping over time.
Further support for the theory was found in a recent replication and extension study, which followed the same empirical strategy as Fredrickson and Joiner’s (2002) study (Burns et al., 2008). Burns et al. (2008) found that in a sample of undergraduates, positive affect was positively associated with broadened coping, and coping was positively associated with positive affect. Broadened coping and positive affect were partial mediators for each other as well. Similarly, other studies conducted by Fredrickson and colleagues have shown support for the unique relationship between positive emotions and broad-minded coping in varying contexts and with differing research designs. For example, research by Fredrickson et al. (2003) on positive emotions and resilience demonstrated that in the face of a crisis (the September 11th terrorist attacks), positive emotions buffered resilient people against depression and fueled thriving. In addition, an experiment testing broadened thinking and behaviours induced positive, neutral, and negative emotional states by watching film clips in order to assess scopes of attention and thought-action repertoires (Fredrickson & Branigan, 2005). Fredrickson and colleagues also have tested whether interventions utilizing loving-kindness mediation induce positive emotions and produce increases in personal resources (Fredrickson et al., 2008), as well as how the broaden-and-build theory can be used as a framework for understanding psychological resilience and life satisfaction (Cohn et al., 2009; Tugade & Fredrickson, 2004, 2007).

Findings from other research with adults also align with the broaden-and-build theory; positive emotions are associated with improved coping in stressful situations (Folkman, 2008; Lyubomirsky, 2010; Tugade & Fredrickson, 2004; Tugade et al., 2004). Experiencing positive emotions has been significantly and positively related to broadened thoughts and behaviours, such as creative thinking and problem solving, leading to the development of adaptive physical, intellectual, and social responses to the environment (i.e., coping resources) (Ashby et al., 1999;
Isen et al., 1987). In sum, this is a recurring finding that has been observed with many different adult groups and gives strength to the broaden-and-build theory.

Even though Fredrickson and colleagues have not tested the theory with children and adolescents, other researchers have observed associations between positive affect, mood, and other related constructs (i.e., hope, optimism) and broadened thoughts and actions in children and adolescents (e.g., Reschly et al., 2008; Valle et al., 2006; Yeung, Ho, & Mak, 2015). For example, Reschly et al. (2008) found that in the context of adolescents’ school engagement and learning, problem solving mediated the effect of positive affect on student engagement, and seeking social support partially mediated the relationship between positive affect and student engagement (assessed using the Problem Solving and Social Support Seeking subscales of the SRCS, respectively). In addition, findings from research where positive affect was induced indicated it predicted creative thinking and problem solving. Similarly, induced positive mood predicted greater self-efficacy in children (Bryan & Bryan, 1991; Greene & Helga, 1988). Additionally, hope was associated with positive internal factors, such as problem-solving abilities and life satisfaction in adolescents (Lopez et al., 2009; Valle et al., 2006; Zimmerman et al., 2013), and researchers have indicated these associations could be a natural human process (Antaramian et al., 2016; Nevin et al., 2005; Suldo et al., 2008). Findings from the current study provide further support for the association between positive affect and coping in children and adolescents. They indicate positive emotions predict improved broadened coping; broadened coping likewise predicts increases in positive emotions. Moreover, these results indicate this association exists over time, signifying one of the unique contributions of this study.

Findings from the present study are of particular importance in early adolescence. This period of significant neurological, biological, and physiological development, coupled with
greater social and academic stress, is when many behavioural and psychological problems may occur and/or increase (Buckley & Saarni, 2009; Oberle et al., 2011; Otis et al., 2016; Roeser & Eccles, 2014; Zimmermann & Iwanski, 2014). Encouragingly, it is also a time when areas of the brain responsible for reasoning, planning and decision-making, and emotional regulation are developing (Forbes & Dahl, 2010; Luna & Sweeney, 2001) and cognitive techniques such as problem solving are being added to the coping strategies they use (Zimmer-Gembeck & Skinner, 2011). It is also during this time that emotion centers in the brain may show increased responding and emotional reactivity, especially to positive stimuli (Ernst et al., 2005, 2006; Forbes et al., 2010; Galvan et al., 2006), suggesting the results from this study can provide information for the design of future resilience research and educational applications that may be particularly beneficial during early adolescence. Taken together, given the importance of early adolescence as a critical transition period, the main conclusion from this study is that future research needs to include positive emotions as a predictor of coping and resilience in research on resilience and well-being.

**Limitations and Future Directions**

The correlational, two-time point, longitudinal design of this study limits any causal interpretations that can be made regarding the findings. Indeed, although the results suggest a significant relationship between positive emotions and broad-minded coping, no firm conclusion can be made as to whether changes in positive emotions cause changes in broad-minded coping. An experimental study would be required in order to support any causal relationship between positive emotions and broad-minded coping in early adolescence. Similarly, a longitudinal design with multiple data assessment waves would be required to support any claims regarding the long-term building of coping resources, experiences of more positive emotions over time,
and serial influence of the variables on each other toward resilience and well-being (Fredrickson & Joiner, 2002). In addition, the findings from this study come from self-report measures and may be influenced by under-reporting or over-reporting. For example, self-perceptions, consistency seeking, self-enhancements, and social desirability may lead participants to respond based on how they think they should respond, or how they want others to perceive them (Montag, Heinz, Kunz, & Gallinat, 2007; Paulhus & Vazire, 2007).

Given the diverse sample of the current study, the results may not be generalizable to other contexts. For example, 79% of participants reported English as their first language, which may not be as representative for other countries as it is for Western Canada. It is also important to note that the interpretation of the indirect effect for positive affect as a mediating variable would benefit from future research with a larger sample to see if, and by how much, the bias-corrected bootstrap confidence intervals would vary. Given that age and gender differences have been noted in the literature, but were not detected in the present study, a larger sample would allow exploration of whether these differences exist. For example, literature on coping in children and adolescents has indicated that females appear to exhibit higher levels of problem-solving and self-reliance than males (Antaramian et al., 2016; Eschenbeck, Kohlmann, & Lohaus, 2007). Likewise, future research with different age groups might show different outcomes with slightly older students. For example, in a study on adolescent well-being, grade-4 students reported feeling quite optimistic and positive about themselves, whereas grade-7 students reported feeling less optimistic (Schonert-Reichl, 2011), indicating that the effects of positive emotions on coping could look different with slightly older populations. It would, therefore, be important to replicate these findings with a larger sample, longer study design, and additional populations.
As research on early adolescence has highlighted the significance of this time in
development, school-based interventions during this period could have a particularly large effect
on the development of resilience and well-being. As such, the integration and application of
empirically based training, techniques, and programs aimed at increasing students’ positive
emotions in schools, which in turn broaden students’ thinking and coping in a school setting,
would be well aligned with the mission of schools to educate youth and help foster healthy
development. (Chafouleas & Bray, 2004; Clonan, Chafouleas, McDougal, & Riley-Tillman,
2004; Huebner & Gilman, 2003; Huebner et al., 2009). For example, emotion regulation
training—more specifically, interventions designed to monitor and regulate positive and negative
emotions (Graziano, Reavis, Keane, & Calkins, 2007)—in addition to learning how to savor
positive emotions, could be beneficial interventions to implement in schools. In addition, some
examples of positive psychology-based techniques currently used in schools include (see
Shankland & Rosset, 2016 for a review) gratitude exercises, consisting of daily gratitude writing
exercises listing five things students are grateful for (Emmons & McCullough, 2003) and a
school-based program called “Making Hope Happen” (Snyder, Lopez, Shorey, Rand, &
Feldman, 2003), which uses a 5-week curriculum to help students set positive goals, think of
strategies to overcome obstacles, and reflect upon and evaluate their process for goal attainment.

Whole-school positive psychology-based programs offer another example of how the
broaden-and-build theory may inform the design of school-based interventions. For example, the
Maytiv program is a positive psychology school-based intervention in an Israeli middle school
aimed at enhancing mental health and empowering both students and educational staff by
increasing students’ sense of joy and satisfaction, engagement, meaning, social support,
achievement, and overall psychological well-being through tools and skills that can be integrated
into students’ daily lives (Shoshani & Steinmetz, 2014; Shoshani, Steinmetz, & Kanat-Maymon, 2016).

A Positive Psychology curriculum for adolescents is another intervention that has been piloted with grade 9 students by a high school outside Philadelphia. The curriculum consists of approximately 25 lessons related to positive-psychology concepts and is aimed at promoting resilience, positive emotions, a sense of purpose and meaning, and use of signature character strengths in day-to-day life (Seligman, Ernst, Gillham, Reivich, & Linkins, 2009). Another example for a more continuous intervention is the Geelong Grammar School in Australia, a boarding and day school for preschool to grade 12 students. In this intervention, over the course of 4 years, approximately 250 staff members were trained by a team from the Positive Psychology Center at the University of Pennsylvania to teach the theoretical elements and skills of positive psychology, such as character strengths, meaning, gratitude, flow, positive emotions, optimism, and positive relationships and were given detailed curricula of how to teach these elements to children. After the training period, the schoolteachers taught positive psychology courses in several grades, and the professional teachers embedded positive education elements into most academic courses (Seligman et al., 2009; Williams, 2011).

Despite its limitations, findings from the current study provide further support for the association between positive affect and coping in children and adolescents, indicating that in early adolescence positive emotions play a unique role in resilience by predicting improved broadened coping. Moreover, these results indicate this association exists over time, signifying one of the unique contributions of this study. As mentioned earlier, this was the first study that utilized a longitudinal design to explore the role of positive emotions in coping over time with early adolescents.
Despite the fact that additional research is needed to evaluate whether the relationship between experiencing positive emotions and adaptive coping accumulate and compound over time in child and adolescent populations, as suggested by Fredrickson’s (1998, 2001) theory, findings from the two assessment waves suggest (1) future well-being could be true, as well as (2) the importance of including the role of early adolescents’ positive emotions in future resilience research. Thus the current study contributes to the existing literature by extending previous investigations of the broaden-and-build theory with children and adolescents. For instance, to my knowledge, no one has examined the theory using a longitudinal design with children or adolescents by paralleling the study design, methodology, and analyses employed in the first study exploring the theory (Fredrickson & Joiner, 2002). Hence, the present study provides a compelling catalyst for future research examining the theory with children and adolescents. Moreover, the results suggest that future research should examine the broaden-and-build theory in a way that pushes the field to further integrate resilience and positive psychology approaches into the development of coping skills, long-term resources, and well-being in early adolescents. Finally, this study serves as a point-of-departure for better understanding the unique role positive emotions may have in coping for early adolescents: allowing them to see larger forms of interconnections and the systems at work that can make a difference when trying to address some of the larger problems they may face. Thus, providing compelling support for the premise that positive emotions have a larger and more important role than simply making one feel good in the moment, and that this role should be addressed in childhood and adolescence.
References


http://doi.org/10.1002/pits.10133


http://doi.org/10.1037/1089-2680.2.3.300


Inquiry, 11, 184–187.


http://doi.org/10.1111/1467-8624.00164


http://doi.org/10.1037/0033-2909.131.6.803


http://doi.org/10.1016/j.schres.2007.01.024


Oishi, S., & Kurtz, J. L. (2011). The positive psychology of positive emotions: An avuncular


http://doi.org/10.1016/j.paid.2010.03.048


http://doi.org/10.1007/978-1-4614-9608-3


http://doi.org/10.1177/0272431612466175


http://doi.org/10.1177/0165025413515405
Appendices

Appendix A: Teacher Consent Form

TEACHER CONSENT FORM

Evaluating the Effectiveness of the Random Acts of Kindness Curriculum in Elementary School Children: A Randomized Controlled Trial

Oct. 1, 2014

Dear [Teacher’s Name]

We are writing to invite you to participate in our study entitled, “Evaluating the Effectiveness of the Random Acts of Kindness Curriculum in Elementary School Children: A Randomized Controlled Trial.” The study is being organized by educators at the [Name of Faculty or Institution] and [Name of Faculty or Institution] (Faculty of Education, University of British Columbia, Vancouver) with co-investigator [Name of Faculty or Institution] (Faculty of Education, University of British Columbia, Okanagan). Listed below are several aspects of this project that you need to know:

Purpose: The goal of this study is to evaluate the effectiveness of a social and emotional learning (SEL) promotion program for children which focuses on promoting kindness and well-being: the Random Acts of Kindness (RAK) Curriculum. The RAK Curriculum focuses on promoting kindness, resiliency, and well-being in children during the elementary school years. The program provides opportunities for children to enhance their prosocial behaviors (for example, sharing, helping, cooperating) and well-being by engaging in activities identified to promote knowledge and skills associated with kindness and altruism. More specifically, the program provides opportunities for children to enhance their social and emotional skills by engaging in activities identified to promote knowledge of these skills, including emotion understanding, empathy, perspective-taking, and kindness. Such skills and knowledge that have been shown to lead to increases in children’s positive social behaviors and school adjustment.
What will you be asked to do if you choose to participate in the study?

- Provide your written consent to participate in this study.
- Complete a background survey about your teaching experience.
- Complete a survey three times during the school year (October, March, and June) on your students who choose to participate in this study. This survey will ask you to rate their classroom and social behaviours and should take 5-10 minutes per student.
- Host research assistants for about an hour during the three data collection periods (October, March and June). A research assistant will visit your classroom and give surveys to the children as a whole class.
- Complete a weekly implementation calendar throughout the duration of the study. This is a journal where you will answer questions and record activities and lessons performed during class.

If selected to be part of the Random Acts of Kindness implementation:

- Implement the Random Acts of Kindness Curriculum (December - May), giving weekly lessons as indicated by the curriculum.
- Attend a half-day on the Random Acts of Kindness curriculum in early December.

What are the benefits of participating in this study?

Teachers and students will help contribute to the growing knowledge about the development of social-emotional well-being in children and adolescents. All teachers will receive the RAK curriculum. You will be randomly assigned to implement this year or continue with your regular class routine. If you are chosen to participate in the implementation of the Random Acts of Kindness (RAK) curriculum this year, you will receive a half-day training session in December and curriculum materials at no cost, along with ongoing support from a RAK coach should any questions arise. If you are not assigned to implement the program during the study, you will be invited to take part in the RAK training and receive curriculum materials at no cost after the study ends, and you may implement the program at your leisure once the study ends. Your students will also have the opportunity to learn about scientific research.

Will you be compensated for participating in the study?

As a token of appreciation, we will also be providing you with a $50 gift card for participating. You will also be provided a half-day release with an EOC during each of the three data collection periods (October, March and December). All classrooms will receive a pizza party at the end of the study as a token of our gratitude to you and your students for participating. Compensation is not dependent on completion of the project, but may be pro-rated for those that withdraw before completion.

Are there any risks if you participate in this study?

There are no known risks to teachers for participating in this study. Your participation in this project is voluntary. At any given time, you can decide to withdraw from participating in the study, even after signing this consent form. Refusing to participate or withdrawing from the study will not jeopardize your job or professional standing in any way.

How will your privacy be maintained?
Any personal information resulting from this research study will be kept strictly confidential. Neither you nor your students will be identified by name in any reports of the completed study. All documents will be identified by code number only and kept in a secured information system and locked filing cabinet in [redacted] research lab at UBC. Only the researchers and research assistants will know the identity of the participants in this study (both teachers and students). No information that discloses your or your students’ identities will be released or published without specific consent. Research records identifying participants may be inspected in the presence of the Investigator or his or her designate by representatives of the UBC Research Ethics Board for the purpose of monitoring the research.

**How will results be disseminated?**
Findings from the study, in which the participants are identified by code number only, may be published in reports, scientific journals, and/or included in presentations. A summary of the results will be made available to participants upon request.

**Who can you contact if you have questions about the study?**
If you have any questions at any time during this project, you may contact [contact information]

**Who can you contact if you have any concerns about the study?**
If you have any concerns about your rights as a research subject and/or your experiences while participating in this study, you may contact the [contact information]

Sincerely,

[Signature]
Principal Investigator
Professor, Department of Educational and Counselling Psychology,
and Special Education, UBC
TEACHER CONSENT FORM

Study Title: Evaluating the Effectiveness of the Random Acts of Kindness Curriculum in Elementary School Children: A Randomized Controlled Trial

Researcher: [Redacted]
Professor, Department of Educational and Counselling Psychology and Special Education, 2125 Main Mall, University of British Columbia, Vancouver, B.C. V6T 1Z4

Contact: [Redacted]

(KEEP THE ABOVE PORTION FOR YOUR RECORDS)

---------------------------------------------------------------------------------------------------

Taking part in this study is entirely up to you. You have the right to refuse to participate in this study. If you decide to take part, you may choose to pull out of the study at any time without giving a reason and without any negative impact.

Your signature below indicates that you have received a copy of this consent form for your own records. Your signature indicates that you consent to participate in this study.

____________________________________________________
Participant Signature  Date

____________________________________________________
Participant Printed Name
Appendix B: Parent Consent Form

PARENT/GUARDIAN CONSENT FORM

Evaluating the Effectiveness of the Random Acts of Kindness Curriculum in Elementary School Children: A Randomized Controlled Trial

Oct. 1, 2014

Dear Parent or Guardian,

We are writing to invite your child to participate in a research study evaluating the effectiveness of a social-emotional learning program designed to promote kindness and well-being in students and teachers. Our study, called the "Evaluating the Effectiveness of the Random Acts of Kindness Curriculum in Elementary School Children: A Randomized Controlled Trial," will take place in the Vancouver School District from approximately December, 2014 to June, 2015.

Who is conducting this study?
This study is being organized by educators at the [Faculty of Education, University of British Columbia, Vancouver]. This project is also linked to the Vancouver School Board's focus on promoting students' social-emotional learning and social responsibility in school. We hope that the results of this study will help parents and educators better understand how to promote students' emotional and social development in relation to school success and therefore be better equipped to improve education for all.

What is the purpose of this study?
The goal of this study is to evaluate the effectiveness of a social and emotional learning (SEL) promotion program for children which focuses on promoting kindness and well-being: the Random Acts of Kindness (RAK) Curriculum. The RAK Curriculum focuses on promoting kindness, resiliency, and well-being in children during the elementary school years. The program provides opportunities for children to enhance their prosocial behaviors (for example, sharing, helping, cooperating) and well-being by engaging in activities identified to promote knowledge and skills associated with kindness and altruism. More specifically, the program provides opportunities for children to enhance their social and emotional skills by engaging in activities...
identified to promote knowledge these skills, including emotion understanding, empathy, perspective-taking, and kindness. Such skills and knowledge that have been shown to lead to increases in children's positive social behaviors and school adjustment.

Please note that in order to understand program effects, we will be conducting a randomized controlled study, which means that half of the participating classes will be randomly chosen to participate in the Random Acts of Kindness Program and half will continue with their regular classroom curriculum. A randomized controlled study is considered to be the most rigorous way of determining whether a cause-effect relation exists between a program and an outcome. All students who choose to participate in the study will be asked to fill out surveys whether their class has been randomly chosen to take part in the Random Acts of Kindness program or not.

**What will your child be asked to do if you allow him or her to participate in the study?**

**Student Survey Questionnaires**
If you and your child agree to participate, your child will be asked to fill out a questionnaire at 3 separate sessions throughout the year (October, March and June). They survey will ask about your child's background and their feelings about themselves, their peers, and their school. Surveys will take approximately 45 minutes and will take place during the regular school day. Students who do not participate in this research will be given an activity to do that is related to their regular classroom instruction. We will be there to explain the directions and make sure your child understands the instructions, and we will read the survey questions out loud to students. Your child's responses to the survey will not be shared with teachers or school personnel.

The first part of the questionnaire asks about background, such as age, gender, family composition, and language spoken at home. The next set of questions asks about students' feelings about themselves, their emotions, and their social behaviours. The third set of questionnaires asks students to provide ratings of their classmates' positive classroom behaviours, and the last questionnaire asks for information on their feelings about school.

**Program Satisfaction Survey**
In order to understand students opinions of the program, students who are randomly chosen to participate in the Random Acts of Kindness program will also be asked to fill out short surveys with questions about the program. These will be added to the last survey session in May and should take about 10 minutes to complete.

**Additional Sources of Information**
In addition to obtaining information directly from participating students, your child's teacher is being asked to complete a checklist that tells us about your child's social behaviours in the classroom.

**What will children who are not participating in the study do during data collection sessions?**
If you choose not to have your child participate, the researchers will collaborate with your child's classroom teacher to arrange an alternative activity for students who do not participate in the
study. Activities can range from working on classroom assignments, or completing a fun and educational worksheet (word search, crossword puzzle) that the researchers provide. Please note that agreeing/declining for your child to participate in this study applies only to the research portion of this project. This means that if you decline your child's participation, she or he will not participate in any of the research activities involved in this study (the questionnaire). However, your child's classroom teacher may still implement the Random Acts of Kindness curriculum. Random Acts of Kindness is a classroom-based social and emotional promotion program, and teachers who decide that this program be implemented in their classroom do not exclude individual children.

**What will your child's class be learning if it is selected to receive the Random Acts of Kindness Curriculum?**

**Random Acts of Kindness Curriculum:** To supplement your child's regular school curriculum, he or she will take part in weekly kindness lessons over a 16-week period which should take approximately 30 minutes each.

Overarching Concepts of the program include: respect, caring, kindness, integrity, perseverance, self-care, gratitude, responsibility, assertiveness, compassion, and self-discipline.

Grade 4 lesson topics include:
- Friendship - supporting healthy relationships with friends and family
- Reducing and Managing Stress
- Respecting Other's Beliefs and Opinions
- Gratitude and Social Responsibility

Grade 5 lesson topics include:
- Healthy Communication - Including Bullying Prevention
- Taking Care of Ourselves
- What Influences Us - How media, family, and peers influence our mental and emotional health
- Honesty and Integrity

**What are the benefits of participating in this study?**

Your child's participation will help contribute to the growing knowledge about social and emotional learning and whether it has an effect on their academic and social-emotional well-being. The study will also give your child the opportunity to learn about what is involved in scientific research.

**Will your child be compensated for participating in the study?**

As a token of appreciation, we will provide a pizza lunch to the class after the completion of the study for all students whether they choose to participate in the study or not.

**Are there any risks if you participate in this study?**

There are no known risks for students who complete the questionnaires or participate in the program. Student participation is voluntary, and they may withdraw from participating in the study at any time without any consequences. It is also important for you to know that the
questionnaires filled out by your students are not tests. There are no right or wrong answers, and we are not in any sense "testing" the students. We are only interested in finding out your child's opinions and feelings. We hope that the results of this study will help teachers and parents better understand the way that students think and feel and lead to improvements in educational programs.

How will your child's privacy be maintained?
Any personal information resulting from this research study will be kept strictly confidential. Your child's responses will not be shared with teachers or school personnel. Your child will not be identified by name in any reports of the completed study. All documents will be identified by code number only and kept in a secured information system and locked filing cabinet in [Kimberly Schonert-Reichl's] research lab at UBC. Only the researchers and research assistants will know the identity of the participants in this study (both teachers and students). No information that discloses participants' identities will be released or published without specific consent. Research records identifying participants may be inspected in the presence of the Investigator or his or her designate by representatives of the UBC Research Ethics Board for the purpose of monitoring the research.

How will results from the study be shared?
Findings from the study, in which the participants are identified by code number only, may be published in reports and scientific journals, and/or included in presentations.

Who can you contact if you have questions about the study?
If you have any questions at any time during this project, you may contact [Kimberly Schonert-Reichl: kimberly.schonert@ubc.ca, (604) 822-2215] or [Ms. Jenna Whitehead: (604) 604-3296].

Who can you contact if you have any concerns about the study?
If you have any concerns about your rights as a research subject and/or your experiences while participating in this study, you may contact the [Research Subject Information Line in the UBC Office of Research Services at 604-822-8598 or if long distance e-mail RSIL@ors.ubc.ca or call toll free 1-877-822-8598].

Thank you kindly for your time and consideration,

[Kimberly A. Schonert-Reichl, Ph.D.]
Principal Investigator
Professor
Department of Educational and Counselling Psychology, and Special Education, UBC
Parental/Guardian Consent Form

Please keep this form for your records.

Evaluating the Effectiveness of the Random Acts of Kindness Curriculum in Elementary School Children: A Randomized Controlled Trial.

Signing this consent form indicates that:

- You have read and you understand the attached letter regarding the research study entitled "Evaluating the Effectiveness of the Random Acts of Kindness Curriculum in Elementary School Children: A Randomized Controlled Trial."

- You understand that your child's participation in the above research study is entirely voluntary, that you and/or your child may refuse to participate, and that your child is free to withdraw from the study at any time without any consequences.

- You have received and retained a copy of this consent form for your own records.

- You understand that by signing this document, you consent to your child's participation in this study. You also understand that by signing this document you are in no way, waiving your or your child's legal rights.

PLEASE CHECK ONE:

_ YES, I consent for my child to participate in this research study.

_ NO, I do not consent for my child to participate in this research study.

Printed Name of Student Participating/Not Participating

Parental/Guardian Signature Parent/Guardian Printed Name Date
Parental/Guardian Consent Form

Please return this form to your child's teacher as soon as possible.

Evaluating the Effectiveness of the Random Acts of Kindness Curriculum in Elementary School Children: A Randomized Controlled Trial.

Signing this consent form indicates that:

- You have read and you understand the attached letter regarding the research study entitled "Evaluating the Effectiveness of the Random Acts of Kindness Curriculum in Elementary School Children: A Randomized Controlled Trial."

- You understand that your child's participation in the above research study is entirely voluntary, that you and/or your child may refuse to participate, and that your child is free to withdraw from the study at any time without any consequences.

- You have received and retained a copy of this consent form for your own records.

- You understand that by signing this document, you consent to your child's participation in this study. You also understand that by signing this document you are in no way, waiving your or your child's legal rights.

PLEASE CHECK ONE:

_ YES, I consent for my child to participate in this research study.

_ NO, I do not consent for my child to participate in this research study.

_____________________________________________
Printed Name of Student Participating/Not Participating

______________________________________________
Parental/Guardian Signature Parent/Guardian Printed Name Date
CHILD ASSENT FORM

Evaluating the Effectiveness of the Random Acts of Kindness Curriculum in Elementary School Children: A Randomized Controlled Trial

You are invited to participate in a research project that we are conducting at your elementary school entitled "Evaluating the Effectiveness of the Random Acts of Kindness Curriculum in Elementary School Children: A Randomized Controlled Trial." Researchers are interested in knowing more about how kids benefit from learning new programs. Listed below are some things about this project that you need to know.

Why are we doing this project?
The purpose of this study, or project, is to see how well the "Random Acts of Kindness" program works. The Random Acts of Kindness curriculum is a program for kids designed to promote kindness, well-being and academic success. Some of the children who participate in the research study will participate in the Random Acts of Kindness program in their classroom. Other children in the study will not do the program and continue with their regular class. By comparing classes who do the program to those that do not, we are able to see if the program works. We are inviting all of the children in your class to participate in our project. If you want to participate in our research project, you will have to get your parent or guardian's permission and bring back their signed permission slip first.

What will happen during this project?
If you decide to participate, we will visit your classroom 3 separate times throughout the school year (October, March and June), and we will ask you to fill out a questionnaire about yourself. The questionnaire asks you about your background, your feeling about yourself, other students in your class, and school.

For each session, it will take you about 45 minutes to complete the questionnaire. We will be there to explain the directions and make sure you understand the instructions. The first section of the questionnaire asks about your background. Next we will ask you about your feelings about yourself, your classroom, and your positive social behaviours. The third section asks you
to describe your classmates’ positive classroom behaviours. The last section asks for information on your feelings about school. In addition to your questionnaire, we will ask your teacher to complete a checklist that tells us about your social behaviors in the classroom. If your class is chosen to do the Random Acts of Kindness program this year, we will also ask you to give us your opinion of the Random Acts of Kindness curriculum. This will take about 10 minutes.

No one will see your answers to the questionnaire except the researchers. The questionnaire is not a test, and it will not affect your marks at school.

One thing you should know is that even if you decide not to participate in the research project your class still might do the Random Acts of Kindness program. This means that if decide not to participate, you will not fill out the questionnaire, but you will still do the lessons with the rest of your class. Instead of the questionnaire you will do your regular schoolwork.

Can anything bad happen to you?
It is important for you to know that the questionnaire is not a test and there are no right or wrong answers - just your own opinions. We are only interested in finding out your opinions and feelings. We believe that kids are the best experts on kids, so you can help teach us about how kids think and feel. We hope that the results of this study will help teachers and parents better understand the way you think and improve education for all.

Will anyone see your answers to the questionnaire?
No one will know what you wrote except the researchers - not your teacher, not your principal, not your parents. You can be completely honest about your opinions and don't have to worry about what other people think. We will not show your name to anyone. We will use a secret code on all the information (including the questionnaires) that you give to us. That way even the researchers won't know which answers are yours. When we write a report of this project, we will not use your name or initials.

Can you stop participating in the research project if you don't like it?
Yes! You can decide to stop participating at any time. Also, if there are some questions you don't want to answer on the questionnaire, you can skip them. It's totally up to you. The researchers will not be upset if you change your mind about participating. You can talk to the researchers at any time if you have questions or don't want to do something.

Who can you talk to if I have any questions?
If you have any questions at any time during this project, you may ask the researcher who will be with you. Your parents or guardians can also contact us with your question. If you have any questions about this project or about the way you are feeling after the project, you should phone [blank].

If you are worried about how you were treated during the project, you should contact the [blank].
CHILD ASSENT FORM

If you sign your name below, you are saying you would like to participate in the study called:
"Evaluating the Effectiveness of the Random Acts of Kindness Curriculum in Elementary School Children: A Randomized Controlled Trial."

When you sign, you are telling us that you are taking part in this project because you want to, not because someone else wants you to (like your parents/guardians or your teacher).

If you want to stop being in this project, it is okay and no one will get angry. You just need to tell your teacher or the research person that you do not want to do it anymore. If there are some questions you don't want to answer, you do not have to. It's completely up to you.

If you sign, it means that you have had enough time to read this form, to ask questions about this project, and to talk to your parents/guardians. Please tear off this page and give it to the researchers. You can keep the rest of the form in case you want to look at it in the future.

____________________________________  ____________________
Please Print Your Name                Please Write Today's Date
Appendix D: Student Self-report Measures

Measures included in this appendix:

E.1 Student demographic and background questionnaire

E.2 Positive and Negative Affect Schedule for Children - Short

E.3 Self-report Coping Scale
Please tell us about yourself

1. Are you a boy or a girl? \(\textit{Circle One}\) Boy Girl

2. What grade are you in this year? \(\textit{Circle One}\) 4 5

3. What is your birth date? \\
   Month _____ Day _____ Year _____

4. Which of these adults do you live with most of the time? \(\textit{Check all adults you live with}\).
   - Mother
   - Grandmother
   - Part time with each parent
   - Father
   - Grandfather
   - Foster parent(s) or caregiver(s)
   - Stepfather
   - Second mother
   - Stepmother
   - Second father
   - Other adults (write in the space below, for example, aunt, uncle, mom’s boyfriend or girlfriend, dad’s boyfriend or girlfriend):

5. How many brothers or sisters do you have? ____

6. What is the first language you learned at home? \(\textit{You can check more than one if you need to}\).
   - English
   - Cantonese
   - Filipino/Tagalog
   - French
   - Hindi
   - Japanese
   - Korean
   - Mandarin
   - Punjabi
   - Spanish
   - Vietnamese
   - Other ________

7. Which language(s) do you speak at home? \(\textit{You can check more than one if you need to}\).
   - English
   - Cantonese
   - Filipino/Tagalog
   - French
   - Hindi
   - Japanese
   - Korean
   - Mandarin
   - Punjabi
   - Spanish
   - Vietnamese
   - Other ________

8. Which language do you prefer to speak? __________

9. How difficult is it for you to read in English?
   - Very hard
   - Hard
   - Easy
   - Very easy
## Positive and Negative Affect Schedule for Children - Short

<table>
<thead>
<tr>
<th>How much you have felt this way DURING THE PAST FEW WEEKS?</th>
<th>Very slightly or not at all</th>
<th>A little</th>
<th>Somewhat</th>
<th>Quite a bit</th>
<th>A lot /Extremely</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Sad</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>2. Happy</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>3. Scared</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>4. Miserable</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>5. Cheerful</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>6. Proud</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>7. Afraid</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>8. Joyful</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>9. Mad</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>10. Lively</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>
## MORE ABOUT ME

When I have an argument or fight with a friend, I usually….

<table>
<thead>
<tr>
<th>Never</th>
<th>Hardly</th>
<th>Sometimes</th>
<th>Often</th>
<th>Always</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

1. Tell a friend or family member what happened.
   - 1
   - 2
   - 3
   - 4
   - 5

2. Try to think of different ways to solve it.
   - 1
   - 2
   - 3
   - 4
   - 5

3. Talk to somebody about how it made me feel.
   - 1
   - 2
   - 3
   - 4
   - 5

4. Change something so things will work out.
   - 1
   - 2
   - 3
   - 4
   - 5

5. Get help from a friend.
   - 1
   - 2
   - 3
   - 4
   - 5

6. Decide on one way to deal with the problem and I do it.
   - 1
   - 2
   - 3
   - 4
   - 5

7. Ask a friend for advice.
   - 1
   - 2
   - 3
   - 4
   - 5

8. Do something to make up for it.
   - 1
   - 2
   - 3
   - 4
   - 5

9. Ask a family member for advice.
   - 1
   - 2
   - 3
   - 4
   - 5

10. Know there are things I can do to make it better.
    - 1
    - 2
    - 3
    - 4
    - 5

11. Ask someone who has had this problem what he or she would do.
    - 1
    - 2
    - 3
    - 4
    - 5

12. Go over in my mind what to do or say.
    - 1
    - 2
    - 3
    - 4
    - 5

13. Try to understand why this happened to me.
    - 1
    - 2
    - 3
    - 4
    - 5

14. Get help from a family member.
    - 1
    - 2
    - 3
    - 4
    - 5

15. Try extra hard to keep this from happening again.
    - 1
    - 2
    - 3
    - 4
    - 5

16. Talk to the teacher about it.
    - 1
    - 2
    - 3
    - 4
    - 5