CHILDREN'S EMOTION REGULATION INVENTORY (CHERI):
MEASURE DEVELOPMENT, ITEM DOMAINS AND SUMMARY PROFILES

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In loving memory of Grandad and Uncle Max –
Expert joy-makers

ABSTRACT

Skilful emotion regulation in childhood plays a vital role in a raft of developmental accomplishments, including social competence, academic success and mental well-being. However, researchers and clinicians currently have no unified framework for examining children's emotion regulation and few straightforward yet detailed assessment measures. Here, a series of studies was undertaken which identified a collection of observable children's emotion regulation strategies, then organised and grouped the strategies into cohesive domains and profiles. First, a goal-directed model of emotion regulation was outlined. Next, current research measures, clinical measures and focus group data were used to construct a 103-item inventory of behavioural emotion regulation strategies. Multidimensional scaling was then used to calculate and display inter-item relationships after they had been objectively sorted by lay-people and experts. This step also enabled item refinement and inventory reduction. One hundred and fifty one parents of 6-12 year old children then ranked the resulting 85-item Children's Emotion Regulation Inventory (ChERI) in relation to their child using a three-phase Q-sort procedure. Multidimensional scaling, factor analysis and cluster analyses were applied to the responses. Nine fundamental domains of children's emotion regulation were found, interpreted as *Outward Engagement, Inward or Somatic Focus, Disengagement, Disruptive, Impulsive/Labile, Social Connectedness/Compliance, Generating Closeness/Intimacy, Establishing Order* and *Generating Disorder.* Individual scores across these nine domains were clustered to generate five summary Profiles of children's emotion regulation. Results are compared and contrasted with current literature and discussed in terms of potential usefulness of the ChERI for research or clinical applications.

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permissions freely offered. One day I aspire to being able to support future research endeavours with equal generosity.

CONTENTS

LIST OF ABBREVIATIONS

ACC – Anterior Cingulate Cortex

ANCOVA – Analysis of Covariance

ANOVA – Analysis of Variance

BERS – Behavioral and Emotional Rating Scale

CBCL – Child Behavior Checklist

CCQ – California Child Q-Set

ChERI – Children's Emotion Regulation Inventory

EEG – Electroencephalograph

ERC – Emotion Regulation Checklist

ERICA – Emotion Regulation Index for Children and Adolescents

ERP – Event-Related Potentials

ERQ-CA – Emotion Regulation Questionnaire for Children and Adolescents

fMRI – Functional Magnetic Resonance Imaging

GOPA – Grouping, Opposites, Partitioning and Addition (Sorting Method)

GPA – Generalised Procrustes Analysis

Hotspot Labels
- ENG – Outward Engagement
- SOM – Inward or Somatic Focus
- DNG – Disengagement
- DRT – Disruptive
- IMP – Impulsive/Labile
- SOC – Social Connectedness/Compliance
- INT – Generating Closeness/Intimacy
- ORD – Establishing Order/Control
- DRD – Generating Disorder

MDS – Multidimensional Scaling

MoSS – Method of Successive Sorts

PCA – Principal Component Analysis

PFC – Prefrontal Cortex

PSDQ – Parenting Styles and Dimensions Questionnaire – Short Version (adapted)

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PROLOGUE

INTRODUCTION

"Children are like wet cement; whatever falls on them makes an impression"

Dr Haim G. Ginott (1922-1973)

"A characteristic of the normal child is he doesn't act that way very often"

Author Unknown

It is amazing how an odyssey like doctoral study can almost become a sentient thing, managing to navigate its own way through the pathways and perils inevitably encountered by a naive doctoral candidate. Of course, I have given it guidance along the way. But I never intended to write a thesis about children. Prior to starting these studies, my research experience was limited and haphazard. I had dipped into a neuropsychological experiment on mirror neurons in my undergraduate degree, and then wended my way through a discourse analysis on alcoholism for my Honours research. However, when I started looking at research areas and methods that I could spend two or three years entrenched in, neither of these caught my interest.

Starting out in the Clinical Psychology Programme, my initial research interest area was very simply defined: I wanted to study personality disorders. More specifically, I wanted to look at borderline personality disorder. However, being interested in a topic and being able to study it are two very different issues. Obstacles started cropping up all over the place: Access to participants, ethical approval, finding supervisors with complementary research interests and finding a novel research area in such a well-researched domain. Each of these presented a serious conundrum to overcome. At this point, I took a much closer look at what it was about borderline personality in which I was most interested. At heart, I wanted to look at causes, risk factors and interventions. Naturally, during this time I was reading a lot of literature, talking to potential supervisors and trying to find a

compromise in research interests. I began to realise how key the role of emotion regulation was in borderline personality disorder. This was when the thesis started to shape itself, as emotion regulation itself soon became my primary focus. For instance, if emotion regulation difficulties are a crucial component of borderline personality disorder, then what factors contribute to these difficulties in the first place? And if resolved early enough, can the development of a disorder be circumvented? So, although I still wanted to understand about causes, risk factors and interventions, I now wanted to know these things in relation to problematic emotion regulation.

I was learning that although emotion regulation is a key area for borderline personality (Putnam & Silk, 2005), it is also crucial in many other mental health difficulties (e.g., Gross & Muñoz, 1995; Mennin, Heimberg, Turk, & Fresco, 2005) and, indeed, in everyday functioning. Getting emotion regulation "right" enables us to feel, interact, grow, adapt and reach our goals in all kinds of situations. But what does "right" and "wrong" emotion regulation development look like? At this point, my interests shifted to focus directly on emotion regulation in children, and I turned to evolutionary and developmental psychology perspectives for more information.

Perspectives of Emotion Regulation: From Evolution to Temperament.

Evolutionary psychologists view emotions as adaptive states which motivate behaviour in ways that have a selective advantage in terms of reproductive success (Nesse, 1998; Westen & Blagov, 2007). These states may be modulated, and this modulation governs the emotional response tendency, or the regulating behaviour (Gross, 1998b). As such, the regulation of emotion is also viewed in terms of adaptive functioning. However, emotional responses are not always appropriate to the situations and contexts experienced in modern society (Gross, 1999). In answer to my question about how emotion regulation can go so horribly wrong, I consider the words by Nesse invaluable: "natural selection shaped the regulation mechanisms for maximal reproductive success, not for peace and happiness" (1998, p. 401). Thus, evolutionary psychology perspectives tell me that emotion

regulation is an adaptive process which is not completely meshed with modern life and which does not seek emotional stasis. This approach also suggests that emotion regulation happens by way of response tendencies. In other words, although people develop patterns of emotion regulation, we are not restricted to these patterns.

The specific types of strategies a person deploys to regulate their emotions do not appear randomly, but develop from infancy. Developmental psychology perspectives help explain how specific patterns of emotion regulation response tendencies develop over a life course. Thompson and Goodman (2010) outline some of these emotion regulation developments, which include: transitioning from regulation by others to regulation by self; relying more on mental emotion regulation strategies as opposed to behavioural strategies; increasing the breadth, sophistication and flexibility in the deployment of emotion regulation strategies; drawing on emotion-specific strategies; developing more sophisticated goals underlying the strategies and; developing consistency in one's emotion regulation "style". The successful achievement of many of these developments rely on the transactions that occur in the caregiver-child relationship, and when this relationship is compromised, so is the child's ability to develop broad, sophisticated and flexible strategies.

This very early caregiver-child relationship is often referred to as the attachment relationship, another key concept with an evolutionary perspective (Bowlby, 1988). Differences in the security of the attachment relationship may be especially significant for the growth of emotion regulation (Cassidy, 1994; Holodynski & Friedlmeier, 2006; Thompson, 1994). The structure of the attachment behavioural system can be viewed as a relational emotion regulation system (Guttmann-Steinmetz & Crowell, 2006). A child uses the interaction and socialisation in the relationship to learn when and how to regulate emotions (Guttmann-Steinmetz & Crowell, 2006). Additionally, attachment is fundamentally defined as the idea that a child seeks to maintain a certain proximity (or more specifically, expectation of "accessibility") to the attachment figure (Bowlby, 1969). Thus, by regulating his or her proximity to the caregiver, the child can regulate emotions such as distress, fear

or even contentment. Security of attachment relationships in older children is also relevant to emotion regulation, as research demonstrates securely attached preadolescents have greater emotional awareness than insecurely attached preadolescents (Brumariu, Kerns, & Seibert, 2012)

Individual characteristics of temperament are also vital in understanding variability in emotion regulation outcomes. Temperament has been defined as the "psychological qualities that display considerable variation among infants and young children and...have a relatively...stable physiological basis that derives from the individual's genetic constitution" causing people to be predisposed biologically to react in a particular way to certain events or contexts (Kagan, 1994 p. 16). A more user friendly definition by Rothbart and Derryberry describe it as "individual differences in reactivity and self-regulation assumed to have a constitutional basis"(1981, p. 40). This means the differences in excitability, responsivity, arousability and neural and behavioural processes are based on the enduring biological make-up (and the ongoing effects of maturation and experience) of the individual.

Thompson and Goodvin (2007) outline three ways in which temperament affects emotion regulation. Firstly, there are individual temperament differences in the intensity and duration of emotions that require regulating. In other words, each child's experience of emotion is different, as is the quality and quantity of emotion that requires regulating. Secondly, differences in a child's natural proneness towards inhibition or effortful control can contribute to their ability to regulate and exert behavioural control. In other words, some children are naturally more able to suppress their emotions than others. Thirdly, a child's temperament may interact with care-giving influences to form the child's emotion regulation. For instance, a child with certain temperament qualities which fail to elicit adequate caregiver responses may reduce opportunities firstly to acquire appropriate emotion regulation strategies and, secondly, to learn when and how to use them. Consequently, although two different children may have very similar developmental and attachment experiences, one may develop difficulties with

regulating emotions, whereas the other may regulate emotions well. This variability can be partially explained by their differences in temperament.

The final contributing perspective I have drawn from in building, undertaking and understanding this research is developmental psychopathology. Emotion regulation has been implicated in more than half of non-substance related Axis I disorders in the Diagnostic and Statistical Manual of Mental Disorders (DSM) and all of the personality disorders on Axis II (Gross & Levenson, 1997) and has been described as a "fundamental prerequisite of general mental health" (Gross & Muñoz, 1995, p. 155). Developmental psychopathology is a sub-discipline of developmental psychology and it focuses on how normal psychological development can occur by studying pathological development and vice versa (Cicchetti, 1984). This approach provides a structure with which to understand and view normal developmental processes in both typically and atypically developing children (Eisenberg, Spinrad, & Eggum, 2010). The developmental psychopathology perspective provided the connection I needed between the development of emotion regulation in childhood and later adjustment and psychopathology.

Emotion regulation is an important component within the developmental psychopathology premise (Cole, Michel, & Teti, 1994). In particular, developmental psychopathology allows me to look at how problematic emotion regulation could lead to difficulties with adjustment and mental health. It allows me to view robust emotion regulation as acting as a protective mechanism for those who experience other forms of adversity. Finally, it allows me to examine how emotion regulation can be helpful or unhelpful in typically developing children.

A brief inspection of the research material on children's emotion regulation has shown that there was a significant body of literature to consider. Consequently, two preliminary questions are outlined below which provide focus for the review and the construction of overall research questions and hypotheses.

1. How do researchers and clinicians conceptualise children's emotion regulation and is there a framework researchers use to study the construct?

2. How do researchers and clinicians measure emotion regulation and is there a standard or useful approach to operationalising the construct?
3. What factors are believed to contribute to the development of emotion regulation and how are they conceptualised and assessed?
4. How has emotion regulation been examined in the past, what are the conclusions drawn and what research openings remain?

CHAPTER ONE

EMOTION REGULATION LITERATURE REVIEW

"I don't want to be at the mercy of my emotions. I want to use them, to enjoy them, and to dominate them."

Oscar Wilde, The Picture of Dorian Gray

Emotion

A discussion of emotion regulation cannot be presented without first developing a clear conception of emotion. The first of psychology's early theorists to provide an explanatory account of emotion was William James in his seminal essay: *What is an emotion?* (1884). Prior to James' theory, it was believed that emotions arose following the perception of an emotion-eliciting event. James proposed that bodily sensations came directly after perceiving an event; emotion was in fact the feeling of the bodily sensation as it occurred. Unlike many behavioural and cognitive domains, emotions have no central cerebral structure responsible for their function. (Although several cortical and subcortical areas associated with maintaining homeostasis have been shown to differentially activate or deactivate when specific emotions are aroused; Damasio et al., 2000). James argued that they can be better explained as an inherent by-product of motor and sensory nerve action which provides a "predisposition to react in particular ways upon the contact of particular features of the environment" (1884, p. 190).

Concepts of emotions have evolved considerably since James' day. Contemporary ideas view emotions as a complex set of intrapersonal events which occur when we attend to issues of personal significance (Frijda, 2007). Specifically, emotions are the internal experiences or feelings we have when we judge an event to be impacting on our personal goals or values. For the purposes of this research, the

"issues of personal significance" are pared down to "goals". Emotions are not simply feeling states, they are motivators. The experience of an emotion motivates us to do something; to behave or respond in a way that helps us preserve or achieve our values. Evolutionary perspectives state that the purpose of emotions is to influence our behaviours and reactions as a prepared "first alert" response (Cole, Martin, & Dennis, 2004; James, 1884). Every emotion-eliciting event, phenomenon or encounter presents a unique demand requiring a unique response. In this way, emotion must be infinitely adaptive and evolutionarily beneficial.

Although emotions can be viewed as a tool which has helped us survive, the raw expression of that emotion can be detrimental. As was succinctly stated by Beer and Lombardo, "there are few quicker routes to social scorn than inappropriate emotion" (Beer & Lombardo, 2007; p. 69). There are three reasons cited by Lazarus and Launier (1978) as to why emotions require regulating. Firstly, some emotions can be distressing or uncomfortable, or inappropriate to express in certain situations. Secondly, undesirable emotional states may impede our ability to achieve our goals or interfere with adaptive functioning. Thirdly, ongoing psychological stress due to emotions being regulated poorly can result in further mental or physical illness. The ability to sit with distress, to avoid or reduce uncomfortable emotions, to appropriately match the emotions of an interactional partner, or to maintain or heighten positive emotions all contribute to mental and social well-being (Gross, 2002).

Emotion regulation has been widely recognised as influencing interpersonal interactions and socio-emotional adjustment across the course of one's life (Calkins & Hill, 2007; Eisenberg, Hofer, & Vaughan, 2007; Thompson & Meyer, 2007). Appropriate emotion regulation facilitates successful interpersonal interactions and mental health. Emotion regulation gives us a framework for behavioural norms, impression management and allows us to develop empathic bonds with members of our social group, making it vital for our ability to "fit in" (Bargh & Williams, 2007; Lakin & Chartrand, 2003). Conversely, inappropriate emotional

regulation is likely to be deleterious to adaptive social and psychological functioning.

So, why is it important to be successful in our interactions with others? One of the first to outline emotional expression as a key survival feature universal to all animals was Charles Darwin (1872; Hess & Thibault, 2009). Emotional expression is the outward expression of emotional states. However, the emotions expressed by an individual do not always match the emotions felt and there is a regulatory process in place buffering the raw expression of emotion. In particular, Darwin proposed that emotionally expressive behaviour adapted to become a key survival feature at some time in the past. Unless this feature becomes counterproductive in terms of reproductive success, it is likely to remain. According to Darwin, emotional expression serves a key communicative function, which enable us to function in groups (1872). There are display rules to every social group and there are objectives and consequences to our expressions of emotions; and we must deal with these consequences. So, we seek balance in our emotional expression in order to manage others' impressions of us (Bargh & Williams, 2007). One's behaviour cannot be too emotionally expressive, impulsive or cold, or we may be cast out of our protective group.

Emotion Regulation: Issues of Definition

It should now be clear as to why we regulate our emotions – because it is important for inter- and intrapersonal well-being. Now emotion regulation as a concept can be clarified. A number of key individuals have given influential definitions of emotion regulation, yet none have become the gold-standard by which emotion regulation is consistently defined. Several prominent definitions are offered here which have influenced the current approach to emotion regulation. James Gross defines emotion regulation as "the processes by which individuals influence what emotions they have, when they have them, and how they experience and express these emotions" (1998b, p. 275). This definition suits the current research approach in that it calls attention to the multiplex nature of emotions and their

regulation. However, as Gross employs a process (or modal) model of emotion regulation, this definition is also somewhat restrictive. In particular, it categorises emotion regulation based on the strategy's timing in relation to the generation of emotions. Furthermore, this definition by Gross fails to capture the function that emotion regulation serves, or the importance of context and goals. Finally, Gross' approach and supporting research conclude that certain emotion regulation strategies (e.g. reappraisal) are inherently more adaptive or useful than others (e.g. suppression; Gross, 1998a). However, the process model fails to fully consider the context of the emotional event in determining the adaptiveness of a particular strategy (Bariola, Gullone, & Hughes, 2011).

The context in which a strategy is deployed appears key to whether it is helpful and functional or unhelpful and detrimental. For example, using avoidance to prevent the experience of fear or anxiety helps protect us from potential threats. Consequently, we avoid situations perceived as threatening (such as a snarling dog). In this context, one can see how this strategy is helpful and beneficial. However, the very same strategy of avoidance, when used in other contexts (such as avoiding completing course work for fear of a bad mark or avoiding travel by car for fear of crashing) can be unhelpful and detrimental to daily functioning. Thus, context likely plays an equally important role as the specific strategy selected or how strongly the strategy is applied, as more regulation does not necessarily equal better regulation (Bariola, Gullone, et al., 2011; Gross, 1998b). Consequently, any comprehensive definition of emotion regulation should consider the context in which emotion regulation is deployed.

Ross Thompson has also produced a popular definition of the process of emotion regulation as the "extrinsic and intrinsic processes responsible for monitoring, evaluating and modifying emotional reactions, especially their intensive and temporal features, to accomplish one's goals" (Thompson, 1994, p. 27). Thompson clearly speaks to how emotion regulation is affected by relevant goals. However, the key aspect of context is also omitted here. A more general definition by Shields and Cicchetti regards effective emotion regulation as the ability to "monitor and

modulate one's [emotional] arousal such that an optimal level of engagement with the environment [is] fostered" (1998, pp. 382-383). Here, the importance of context is emphasised, however the role of emotion regulation in achieving goals is omitted. Perhaps "optimal level of engagement" connotes optimal in relation to goal attainment, but this is not explicit.

The definition provided by Eisenberg and colleagues states that emotion regulation is the "processes used to manage and change if, when and how … one experiences emotions and emotion-related motivational and physiological states, as well as how emotions are expressed behaviorally" (2007, p.288) This definition focuses on the experiential and physiological aspects of emotion, and the behavioural aspect of emotion regulation, yet does not attend to the contextual factors involved. Additionally, although the definition nods at the motivational role of emotions, it does not emphasise precisely *what* is doing the motivating; namely, goals.

In its simplest form, emotion regulation has been described as the process by which we prevent, increase, decrease or maintain emotions (Koole, 2009). However, this definition does not provide a suitably comprehensive understanding of the construct.

Although somewhat cumbersome, my definition integrates ideas from the influential descriptions outlined above. By my definition, emotion regulation is the processes by which people monitor, influence and adjust their emotions and how they evaluate and demonstrate emotions to achieve their individual objectives in relation to their emotional context. When I describe emotion regulation as a process, I mean that the individual and the context are constantly changing and adjusting in relation to one another (Barrett & Campos, 1987). These processes can be internal and/or external; conscious and/or unconscious; intentional and/or automatic; and explicit and/or implicit; (Bargh & Williams, 2007; Davidson, 1998; Frijda, 2007; Mauss, Bunge, & Gross, 2007; Thompson, 1994).

Some authors state that emotion regulation occurs in relation to emotions which have already been activated (Cole et al., 2004). However, others state emotions can be regulated before they are elicited in full or even before they are elicited at all (Gross & Thompson, 2007). Emotion is regulated at several points in relation to the generative process, but is generally divided into two categories: antecedent-focused or response-focused. Regulation which is antecedent-focused addresses the things we do before an emotion is fully generated. Regulation which is response-focused deals with the emotion during or after it is generated (John & Gross, 2004). It is important to note, the term "individual objectives" is not intended to preclude the current definition from being easily applied to collectivist, or non-individualist groups. The individual's goals may be consistent with a collective's goals, or they may not, depending on the personal circumstance of the individual.

Although often studied independently, emotion and emotion regulation are not so clear cut in real life. This has given rise to a debate about whether the two concepts can be studied separately. Some scholars and researchers work from a two factor model of emotion and emotion regulation (Cole et al., 2004). This means they believe emotions can be inferred as a discrete entity to emotion regulation and superior research makes all efforts to study the two constructs independently. Others take a single factor model approach. Specifically, they contend that emotions and emotion regulation cannot be studied independently as emotion does not exist in an unregulated manner. Advocates on this side of the debate consider "regulation [as] an essential component of the emotion process" (Frijda, 1986; p. 405). Others point out that no researcher has been able to present an observable or measureable indicator that a pure, unregulated emotion is occurring (Campos, Frankel, & Camras, 2004; Cole et al., 2004; Kagan, 1994). Thompson, Lewis and Calkins (2008) view emotion regulation as a component of emotions, rather than a separate entity that responds to the activation of emotions. In other words, they are part of the same system – emotions are regulated as they are generated or in anticipation of their generation. I agree with the points posited in Campos et al.

(2004) and Thompson et al. (2008) and the current research considers emotion regulation using the single factor model.

Emotion Regulation versus Similar Concepts

Emotion regulation is an ambiguous term with several potential understandings. Indeed, theorists and researchers of emotion regulation often do not work to one single definition or even within a single theoretical model (Thompson, 1994). To ensure clarity and transparency, it is important to openly present and justify the conceptualisation of emotion regulation under which this research operates. Furthermore, it is important to explicitly differentiate this definition of emotion regulation from other related concepts. Here emotion regulation will be set apart from three concepts that it is commonly associated or confused with: emotional control, coping and affect regulation.

Control and self-regulation are valued concepts in a Western society (Baumeister & Exline, 1999) partly founded on religious (in particular, Christian) values of modesty and restraint. Emotional control refers to restricting emotion intensity or the intensity of the emotional expression. For example, a situation may warrant an individual experiencing profound disappointment, but that person may find a way to control the intensity of that disappointment so as to not become overwhelmed by it. As can be seen in this example, emotional control invariably acts as a form of down-regulation, inhibiting a particular emotional response. However, emotional control is but one type of emotion regulation, and does not include strategies that work to maintain or enhance emotion.

The concepts of coping and emotion regulation have common characteristics, but not to the point of redundancy (Gross, 1998b). Coping often includes non-emotional behaviours applied to non-emotional phenomenon (Gross, 1998b). Additionally, coping implies stress (Skinner & Zimmer-Gembeck, 2007). Emotion regulation, however, does not automatically assume either a stressful event or a negative emotion to be managed. Coping in childhood has been defined as:

> purposeful responses that are directed toward resolving the stressful relationship between the self and the environment (problem-focused coping) or toward palliating negative emotions that arise as a result of stress (emotion-focused coping) (Compas, Connor, Saltzman, Harding Thomsen, & Wadsworth, 2001, p. 88)

Emotion regulation is often subsumed under the umbrella of coping and could be viewed as a form of coping (Skinner & Zimmer-Gembeck, 2007). Yet, coping with heightened negative and positive emotions is but one characteristic of emotion regulation (Kopp, 1989). Coping focuses on regulating distress and the emotional experience to be coped with usually considered to be negative (Gross & Thompson, 2007). Furthermore, negative emotional experiences are viewed as things that require managing, thus coping is inherently considered a positive achievement. James Gross believes (2002), however, that emotion regulation is neither a positive or negative task in and of itself. The same emotion regulated the same way may have a very different outcome depending on the unique context the emotion regulation occurred in. Consequently, emotion regulation is both more than and less than coping.

Emotion regulation and affect regulation are occasionally used interchangeably. However, they are considered here as related, but different concepts. Other authors use the term “affect regulation” to describe the management of feeling states as a whole, thus wrapping together the regulation of both moods and emotions (Larsen & Prizmic, 2004). However, these concepts are quite distinct. Mood is a pervasive and enduring quality of feeling which is expressed outwardly as affect (although mood and affect are also often used interchangeably, adding to the confusion). Emotion is a complex feeling state with experiential, cognitive, physiological and behavioural components. Although influenced by mood, emotion supersedes it in terms of the strength of the feeling state. To provide an illustration, a person’s mood may be irritable, at the same time, this person’s affect may appear euthymic, and her emotion in response to recent good news may be elation. Accordingly, here affect regulation refers to modulating the enduring mood. Emotion regulation refers to regulating the transient, complex and fluctuating feeling states.

Terminology

Much of the literature and research available refers to emotion dysregulation in relation to emotion regulation (e.g., Mennin et al., 2005; Putnam & Silk, 2005; Shields & Cicchetti, 2001). Cole and her colleagues define emotion dysregulation as emotion regulation which impairs functioning (1994). Keenan goes a step further and describes it as typical emotion regulating behaviours which, for some reason, become repeated patterns of behaviour that are used across time and in an extreme form (Keenan, 2000). Cicchetti, Ackerman and Izard (1995) forge a strong distinction between emotion dysregulation and, what they call, "problems with emotion regulation". They describe problems with emotion regulation as deficits in emotion regulation ability or development. Emotion dysregulation, however, is promoted as the maladaptive implementation of otherwise adaptive emotion regulation strategies. The bifurcation and the nomenclature used to describe dysregulation seem unnecessary. There is no reason to divide these concepts into two separate constructs (Bloch, Moran, & Kring, 2010).

Cole et al.'s (1994) and Keenan's concepts state emotion regulation can impair functioning, and that initially adaptive patterns of emotion regulating behaviour can become so entrenched as to cause considerable ongoing difficulty. However, the term "emotion dysregulation" implies that the regulation process is impaired or even that the emotions are unregulated. There is an inherent "badness" associated with the term. All emotion is regulated. The key point here is that sometimes an emotion regulation strategy is helpful and beneficial and sometimes that same strategy is not. Cole et al. (1994) describe how patterns of emotion regulation which are initially adaptive can become maladaptive (e.g. as contexts shift) and can lead to psychopathology and adjustment difficulties. But this does not imply that the core emotion is unregulated or that the regulating process is impaired. In fact, in many cases, the process could not even be considered dysfunctional. Often the emotions are being regulated extremely well, just in an inappropriate context or rigid manner. Although the terminology used in the current research is analogous to Cole et al.'s and Keenan's, the term emotion dysregulation could be misleading. Consequently, problematic emotion regulation is used instead of emotion

dysregulation. When the term is used, it is only in describing research conducted by others in the way they have used it.

Models of Emotion Regulation

There are a number of models which have been developed to help explain emotion regulation. The most prominent of these is James Gross' process model of emotion regulation. Gross (1998b) describes five families of emotion regulation strategies in his model, including: *situation selection, situation modification, attentional deployment, cognitive change* and *response modulation*. Each family of strategies is used at a particular point in the emotion generative process. Thus, the emphasis is on when strategies are deployed in relation to the occurrence of an emotion over time. For instance, using a strategy from under the banner of *situation selection*, a person with a height phobia may prevent an experience of fear by avoiding situations which elicit it, such as skydiving. However, a person who enjoys extreme sports may seek out that experience of fear by selecting skydiving situations. Although Gross' families of emotion regulation effectively summarise the different higher order strategies that could be used, because the model focuses on the emotion generative process, it is not able to be applied to strategies which might occur at multiple phases of the emotion generative process (except as differing strategies). Additionally, although Gross views emotions as linked with individual goals (Gross, 2002), his model does not account for how strategies are deployed in relation to a particular goal. Finally, the model does not speak to the context in which the strategy is deployed in deeming a strategy helpful or problematic.

Two models of coping have been prominent in the coping and emotion regulation literature – The "ways of coping" model (Lazarus & Folkman, 1984) and the "primary-secondary" model (Rothbaum, Weisz, & Snyder, 1982). The ways of coping model works at the level of *specific* strategies, classifying them as either emotion-focused (finding ways to cope with the emotional distress) or problem-focused (finding ways to cope with the problem causing the emotional distress; Lazarus & Folkman, 1984). The primary-secondary model takes a broader look at

coping strategies and categorises them as aimed at changing the environment to match a person's wishes (primary control) or changing themselves to fit better with environmental forces (secondary control; Band & Weisz, 1988; Rothbaum et al., 1982). The main difference between the two models is the level of specificity of the strategies they examine. In terms of models of emotion regulation strategies, there is no reason for these conceptualisations to require separate models and a more holistic model would be able to delineate strategies encompassing both.

Regulatory Focus Theory (RFT) offers an explanation of motivation as either "promotion-focused" (seeking accomplishments and aspirations) or "prevention-focused" (seeking safety and responsibilities) (Higgins, 1997). Individuals develop a tendency to draw more heavily from one of these focuses, meaning a person who is more promotion-focused would use different strategies to achieve the same goal than a person who is more prevention-focused. Needless to say, a chronic tendency towards the use of strategies with a promotion-focus does not preclude the use of strategies with a prevention-focus, and vice-versa. This model, when looked at as an explanation of emotion sensitivity in relation to goal motivation, provides a structure for understanding how the characteristics of a person contribute to the quality and intensity of an emotional experience. However, it does not provide a satisfactory framework for understanding the relationship between these characteristics, emotions and emotion regulation.

Current understandings and models of emotion regulation, coping and goal motivation acknowledge the role of an individual's goals in eliciting emotion and the role of the individual and their context in the appropriate deployment of regulation strategies. However, none seems to emphasise the importance of these in its structure.

Children's Emotion Regulation

Now that emotion regulation has been defined, contrasted with similar concepts, and relevant models explored; emotion regulation as a researched construct can be

outlined. This section will discuss relevant theories of how emotion regulation develops from birth through to adulthood, how emotion regulation affects and is related to other areas of a child's development and current understandings of the neurophysiology of emotion regulation.

Development of Emotion Regulation

The development of emotion regulation is a multifaceted process. Developments are proposed to be hierarchically organised, beginning with the rudimentary biological processes which contribute to the manner in which a child's emotional and cognitive functioning develops (Calkins, Graziano, & Keane, 2007). This proposal has gained some support by researchers investigating neural correlates of emotion regulation. Functional Magnetic Resonance Imaging (fMRI) studies have been able to examine cortical efficiency during certain emotion regulation tasks, and have demonstrated that cortical processes related to emotion regulation become more efficient with age (C. Lamm & Lewis, 2010). As such, acquisition of basic regulatory skills are vital to the mastering of later regulatory skills (Calkins, 2007). Consequently, an interruption in the mastery of earlier emotion regulation skills can impede the acquisition of later skills (Calkins & Hill, 2007).

Emotion regulating behaviour begins in infancy. In fact, as early as three months old, a baby will begin shifting visual attention away from something unpleasant or towards something pleasant in an effort to manage emotions (Gross & Thompson, 2007; Posner & Rothbart, 2000; Rothbart, Ziaie, & O'Boyle, 1992). Some authors have argued that emotions and self-regulatory development begin prenatally (Brazelton, 1983). However, neonatal emotions are not, strictly speaking, fully fledged emotions (Holodynski, 2009; Holodynski & Friedlmeier, 2006). Instead, during the first five months, infants develop precursor emotions of pleasure, wariness and frustration (Sroufe, 1995). The prototypical emotions are activated by internal or external physical stimulation with no meaning-making associated with the feeling state. The three basic emotions of anger, fear and joy/pleasure develop in the second six months (Sroufe, 1995). Only two innate, self-regulating strategies can be observed in very young infants – sucking (both nutritive and non-

nutritive) and looking away from or closing eyes in response to a source of overstimulation (Blass & Ciaramitaro, 1994; Holodynski & Friedlmeier, 2006; Mangelsdorf, Shapiro, & Marzolf, 1995; Stifter & Braungart, 1995). At this stage of development, the infant's emotions are otherwise almost exclusively regulated by the caregiver.

Although newborns are almost exclusively regulated by their caregivers, an infant must progress to more independent regulation. Thus, some of the developmental progressions seen in independent emotion regulation include: an increasing use of self-initiated regulation; an increase in the breadth, sophistication and flexibility of strategy deployment; use of more contextually appropriate strategies; specific strategies deployed for specific emotions; the emergence of more complex and stable goals; increased stability in the pattern of strategies an individual child might use and; increased use of other, correspondingly developing skills (such as attention or verbal abilities) (Thompson & Goodvin, 2007). In addition, as children's cognitive and language skills develop and they are exposed to more social and emotional experiences, they develop internal as well as verbal regulatory strategies and learn to integrate their own emotional needs with social and cultural norms and expectations (Cole, Armstrong, & Pemberton, 2010; Thompson et al., 2008).

Holodynski and Friedlmeier (2006) outline five phases of the development of emotions and emotion regulation. Phase One spans the first two years, and describes emotion regulation as being organised interpersonally during this time. The job of the child is to signal motives to the caregiver and the role of the caregiver is to respond quickly and appropriately. This allows for the child to build and acquire a selection of emotions and emotion regulation strategies for a range of contexts.

Phase Two ranges from the child's third to sixth year and involves the reduction in interpersonal regulation and the development of intrapersonal regulation. Children start to develop social emotions such pride, shame and guilt, learn suppression and

delayed gratification and incorporate their emotions and expression with cultural norms.

From age six onwards, Phase Three describes the transition to more internalised strategies, where previously physically overt regulation is performed mentally and the child draws on developing language skills to provide verbal strategies.

Phase Four encompasses adolescence and describes how regulation can now be deployed to enable the attainment of longer term goals. Additionally, strategies become increasingly polished and context specific.

Finally, Phase Five covers adulthood, where emotion-related actions are able to be effectively regulated internally using mental processes. Additionally, strategies used over adulthood become increasingly targeted at moderating the individual's internal goals, motives and expectations. Those strategies focused on shaping the environment to fit the emotional needs of the individual remain stable (Heckhausen & Schulz, 1995).

The attachment relationship between the primary caregiver and the child has been investigated as a key factor in the development of emotion regulation. Research has demonstrated that securely attached children utilise more constructive coping strategies (Kerns, Abraham, Schlegelmilch, & Morgan, 2007) and rely more on cognitive engagement strategies (such as cognitive reappraisal) than insecurely attached or disorganised children (Colle & Del Giudice, 2010). Severe or chronic disturbances in a child's ability to form attachment relationships, like those found in children raised in orphanages, has a significant negative impact on emotion regulation (Tottenham et al., 2010). In addition, emotion regulation has been shown to act as a partial mediator explaining how a child's attachment status can impact on their socio-emotional ability (Contreras, Kerns, Weimer, Gentzler, & Tomich, 2000).

Not all research outcomes support an association between attachment status and emotion regulation. One study has suggested that the age of the child plays a far more important role in emotion regulation strategy use than attachment status (Borelli et al., 2010). Nonetheless, the bulk of the data indicates attachment and emotion regulation are closely linked and even the authors of the discrepant study seemed surprised by their outcome.

Although caregiver and other environmental influences, as well as basic biological factors, influence the regulatory skills a child might develop, so too does maturational timing. The variability in timing and maturational age at which a child acquires other developmental skills "profoundly affect the reactivity and experience of the infant" (Rothbart & Derryberry, 1981, p. 63), which subsequently affects the acquisition of emotional skills. A child who can grasp and crawl earlier than her peers can more thoroughly and independently explore or avoid certain experiences. In contrast, a child whose gross motor skills lag behind his cognitive skills may need to develop certain regulatory skills, such as self-soothing or attentional strategies, to manage the frustration of not being able to explore the world as he might like.

The Role of Children's Emotion Regulation

Children's emotion regulation is believed to play a crucial role in the overall development of the child. A child's ability to focus attention or organise himself in order to work towards goals is founded on his ability to regulate strong emotion (Gottman, Katz, & Hooven, 1996). Consequently, everything from academic ability and social competence, to sporting ability may be affected (Gottman et al., 1996; Graziano, Reavis, Keane, & Calkins, 2007; Gross & Thompson, 2007). Children who are better at managing their emotions even tend to be more imaginative and creative (Hoffmann & Russ, 2012). However, difficulties regulating emotion have been implicated in numerous childhood disorders and difficulties, including disruptive behaviour disorders, anxiety disorders and difficulties and mood disorders (Brumariu et al., 2012; Macklem, 2008). Compared with strong regulators, children who have not developed adequate emotional competence by

middle childhood go on to engage in risky adolescent behaviours (Hessler & Katz, 2010). Furthermore, research has also shown a clear link between difficulties moderating arousal and impulsivity and the early development of borderline personality symptoms in pre-teenaged children (Gratz et al., 2009). Consequently, interventions in middle childhood which target emotion regulation and competence could promote overall well-being for the child and prevent the ongoing effects into adolescence and beyond (Hessler & Katz, 2010).

Children with specific psychopathologies have been shown to demonstrate differential strategy use compared with their peers. For example, anxious children tended to rely more heavily on help seeking and avoidance rather than problem-solving and reappraisal (Carthy, Horesh, Apter, & Gross, 2010). Additionally, children who spontaneously deploy a reappraisal strategy report lower anxiety, and anxious children have trouble deploying reappraisal even when asked to do so. Children with depression are also less likely to draw on problem-solving or reappraisal strategies than their non-depressed peers (B. Lamm & Keller, 2007). The differences in regulation patterns that can be seen in children with affective difficulties go some distance to providing a rationale for introducing emotion regulation-focused interventions with this client population.

As well as being directly associated with a range of child outcomes, emotion regulation plays a mediating role in the relationship between a number of significant child variables and outcomes. For instance, children who regulate well tend to have fewer internalising or externalising problems in the face of parental conflict (Siffert & Schwarz, 2011), have fewer social difficulties in the face of being a victim of community violence (Schwartz & Proctor, 2000), have fewer social difficulties and internalising or externalising problems in the face of maternal psychopathology (Maughan, Cicchetti, Toth, & Rogosch, 2007; Suveg, Shaffer, Morelen, & Thomassin, 2011) and have fewer social difficulties in the face of an adverse temperament (Dollar & Stifter, 2012). Although the direction of the relationships between these variables can only be implied (despite some clever

longitudinal studies), it is clear that a successful child also successfully regulates, even in the most disadvantageous circumstances.

Emotion Regulation and Internalising and Externalising

One of the most frequently studied associations in children's emotion regulation is the link between regulation and internalising and externalising difficulties. Some suggest internalising and externalising issues are a problem of emotional control, in that under-control may distinguish children with disruptive behaviour difficulties and both under- and over-control may be associated with internalising difficulties (Achenbach & Edelbrock, 1978; Calkins, 2007; Eisenberg, Smith, & Spinrad, 2011; Herbert, 1998; Keenan & Shaw, 2003). However, theorists also acknowledge that there is still insufficient research evidence supporting a theory of over-control for internalising difficulties (Eisenberg et al., 2007).

The link between emotion regulation and internalising and externalising behaviours is not surprising. One of the most significant areas of difficulty faced by children who internalise or externalise is socio-emotional functioning (Calkins & Howse, 2004), which is also true of children who demonstrate emotion regulation difficulties (Eisenberg et al., 2007; Eisenberg, Spinrad, & Smith, 2004; Rydell, Thorell, & Bohlin, 2007). Accordingly, there may be some overlap with the constructs. However, there is some evidence to suggest that well-developed emotion regulation skills can temper the effect on social competence of externalising or internalising behaviours (Rydell et al., 2007). Therefore, interventions which target emotion regulation skills and strategies may be indicated when a child is demonstrating clinically significant levels of internalising and/or externalising behaviours.

Contemporary research maintains that internalising and externalising are two distinct types of difficulties which can and do co-occur (Eisenberg et al., 2001; Lahey et al., 2008). They also appear to be characterised by distinct emotions and regulatory strategies. Children who have difficulties with externalising behaviours tend to be impulsive and have difficulty regulating attention and inhibiting

behaviours (Eisenberg et al., 2001). They also tend to experience higher levels of anger (Eisenberg et al., 2001; Rydell, Berlin, & Bohlin, 2003; Rydell et al., 2007; Zeman, Shipman, & Suveg, 2002). Children who predominantly internalise also tend to do poorly on tests of attention, but do not tend to have particular difficulty with impulsivity or inhibiting behaviours. The emotional world of these children tends to be characterised by higher levels of fear as well as difficulty coping with anger (Rydell et al., 2003; Zeman et al., 2002).

The Suppression/Reappraisal Binary

In adult and child research, two higher order strategies of emotion regulation have been examined most thoroughly: suppression and cognitive reappraisal. Investigations into these two strategies began with adult studies and were based on two of the response-focused strategies proposed in James Gross' process model of emotion regulation (Gross, 1998b; Gross & John, 2003). Results suggest that reappraisal is the "healthier" strategy for adults to use when managing unpleasant emotion, possibly because the reappraisal occurs earlier in the emotion generative process, limiting the experience of full blown emotion. Reappraisers tend to have better interpersonal functioning and overall well-being and experience less negative emotionality than suppressers (Gross & John, 2003).

Research examining reappraisal and suppression use with children has only recently begun and has so far yielded mixed results. Most research suggests that, like adults, suppression use in children is associated with negative outcomes, such as school refusal (Hughes, Gullone, Dudley, & Tonge, 2010), increased feelings of interpersonal alienation and neuroticism and decreased feelings of trust and communication in the attachment relationship (Gresham & Gullone, 2012). However, contrary to research with adults, one study found that children were able to have a smaller emotional reaction and could physiologically recover faster by using suppression than by using cognitive reappraisal (de Veld, Riksen-Walraven, & de Weerth, 2012). The authors were surprised by these results and suggested that suppression may be the more adaptive strategy children in this age group have available to them. In reflecting on the tasks used to elicit emotion in the children in

this study, it may be that suppression was simply the most effective strategy available in that context, regardless of age.

Several factors have been explored as contributors to whether a child tends towards using greater suppression or reappraisal use and a number of factors have been identified. Consistent with the results for adults found by Gross and John (2003), lower levels of temperament-related factors of positive mood, approach behaviour and flexibility have been associated with greater suppression use in children (Jaffe, Gullone, & Hughes, 2010). Parenting has also been shown to play a role, with caring parent behaviours associated with more reappraisal use (Jaffe et al., 2010) and high maternal suppression use associated with high levels of suppression use by the child (Bariola, Hughes, & Gullone, 2012). Gender may also play a significant role, with some studies suggesting boys display significantly greater use of suppression than girls (Gresham & Gullone, 2012; Gullone, Hughes, King, & Tonge, 2010). Age may also contribute, as children demonstrate differential use of suppression and reappraisal as they age (Gullone et al., 2010). John and Gross contend that as children mature, they increasingly learn to use "healthy" emotion regulation strategies such as reappraisal, moving away from the "unhealthy" strategies, like suppression (John & Gross, 2004, p. 1324). Although this notion may be true, it fails to adequately consider what could be healthy in the context of the life of a child, where suppression may be more adaptive in many situations.

The Physiology of Children's Emotion Regulation

There is increasing evidence supporting the importance of understanding the biological underpinnings and effects of emotion regulation and its relationship with outcomes. Therefore, a broad overview of contemporary knowledge on relevant emotion regulation physiology is outlined here.

Stephen Porges (1984) was one of the first to suggest that there could be a physiological basis to emotion regulation, and that vagal tone might be an important mechanism. The vagus nerve projects to several thoracic and visceral

organs, including the heart and digestive system. It plays a major role in the parasympathetic nervous system, whose tasks include slowing down physiological processes such as heart rate (Gottman et al., 1996; Porges, Doussard-Roosevelt, & Maiti, 1994). Both basal vagal tone and the ability to suppress vagal tone have been implicated in certain processes (such as attention and cognitive effort) that are required for emotion regulation. Lowered vagal tone in children has been shown to predict observed maladaptive emotion regulation behaviours (Santucci et al., 2008) and self-reported difficulties regulating emotions (Vasilev, Crowell, Beauchaine, Mead, & Gatzke-Kopp, 2009). There is also evidence to suggest that children who demonstrate improved emotion regulation over time also show improvements in their physiological responses to distress (i.e. vagal tone; Vasilev et al., 2009).

Researchers have recently employed techniques such as electroencephalography (EEG) and fMRI to examine neurological activity and changes during tasks thought to require emotion regulation. By examining event-related potentials (ERPs) during EEG recording, researchers believe they have identified indices of emotion regulation; namely, P1 and Nc amplitudes, which are usually implicated in attention selection and cognitive control processes (Dennis, Malone, & Chen, 2009). Larger amplitudes for these indices are associated with fewer difficulties with emotion regulation.

The anterior cingulate cortex (ACC), amygdala and the prefrontal cortex (PFC) have been implicated in emotion regulation (C. Lamm & Lewis, 2010; Perlman & Pelphrey, 2010, 2011; Pitskel, Bolling, Kaiser, Crowley, & Pelphrey, 2011) and these areas are recruited differentially with age. In particular, activity in the ventral PFC appears to increase with age, which appears to correlate with the increased use of cognitive reappraisal (McRae et al., 2012; Perlman & Pelphrey, 2011). Additionally, older children appear to recruit more dorsal areas of the ACC with younger children drawing more on the ventral areas (Perlman & Pelphrey, 2010) and connectivity between the amygdala and the ACC during emotion regulation tasks increases with age (Perlman & Pelphrey, 2011).

Furthermore, age-related shifts in emotion regulation appear to be associated with neurodevelopmental changes (C. Lamm & Lewis, 2010; Lewis, Lamm, Segalowitz, Stieben, & Zelazo, 2006; McRae et al., 2012; Perlman & Pelphrey, 2010, 2011; Pitskel et al., 2011). In particular, cortical activity believed to underlie emotion regulation has been shown to become more efficient with age (C. Lamm & Lewis, 2010; Lewis et al., 2006; Pitskel et al., 2011) and there is evidence that overall increased connectivity between key cortical structures is part of the neural mechanism underlying maturational improvements in emotion regulation (Perlman & Pelphrey, 2011). These findings suggest the development of emotion regulation parallels cognitive and neural development (McRae et al., 2012)

There is preliminary evidence that some of the neurological mechanisms underlying emotion regulation are susceptible to therapeutic intervention. One study examined ERP neural activity before and after an outpatient emotion regulation-based treatment program for children with aggression difficulties and their parents (thus, 89% boys). The children who demonstrated improvements in their scores of aggression after therapy also demonstrated a decrease in ventral PFC activation, bringing them in line with the non-clinical comparison sample (Lewis et al., 2008). The authors suggested this reflects a shift in the children's ability to inhibit responses.

Patterns of Children's Emotion Regulation

Research has already begun to investigate patterns of strategies children draw on to regulate their emotions, and how these patterns relate to other significant variables. Zalewski, Lengua, Wilson, Trancik and Bazinet (2011a) examined emotion regulation profiles in relation to anger and anxiety. They maintained that their study differentiated unregulated emotion from regulated or poorly regulated emotions by comparing physiological, behavioural and self-report data in response to an emotion eliciting task. They uncovered five emotion regulation profiles specific to anger and four specific to anxiety. Although this research contributes to our ability to untangle the process of emotion from regulation, the profiles do not

provide a picture of the types of strategies being used and more general patterns of emotion regulation across contexts.

Carthy, Horesh, Apter and Gross (2010) have extracted profiles of emotion regulation based on eight strategies that children aged 10-17 years might use to calm themselves down (thus, focusing on down-regulation) and compared profiles of anxious and non-anxious children. These strategies were derived from the five stages in Gross' process model of emotion regulation (Gross, 1998b) and included avoidance (situation selection), problem solving and help seeking (situation modification), distraction (attentional deployment), reappraisal (cognitive change), relaxing, venting and suppressing (response modulation). The anxious profiles demonstrated higher levels of negative emotional responses and difficulties applying cognitive reappraisal, even when reminded to use the strategy.

The results of research investigating the strategies children aged five to seven say they use to down-regulate anger, sadness or fear closely parallel the eight strategies outlined by Carthy et al (2010). Here, four categories of strategies were generated, including environmental change, social interaction, distraction or cognitive techniques (Endrerud & Vikan, 2007). Social interaction was the preferred strategy for children in this age group.

Some emotion theorists maintain that emotion regulation strategies are matched to the emotion generated. Specifically, that we have emotion related rules or scripts that govern our responses based on our experiences with this emotion (Endrerud & Vikan, 2007; Tomkins, 1987). However, this has not been born out in the results of research investigating children's strategy use across different emotion types (Dias, Vikan, & Gravås, 2000; Endrerud & Vikan, 2007). In fact, Dias et al. found children provided different strategies for different emotional *contexts* rather than emotion type.

Key Variables in Understanding Emotion Regulation

It is unlikely that one blanket rule for all applies with regards to helpful emotion regulation strategy use. Researchers have uncovered differences stemming from ethnicity and gender variables. For instance, one longitudinal study found there to be little variation in strategy use between African American and European American children (Supplee, Skuban, Shaw, & Prout, 2009). However, physical comfort seeking and self-soothing was linked with greater later externalising problems with African American children, yet was inversely related with externalising problems for European American children. Studies have generated inconsistent results regarding gender-based differences in emotion regulation. One study found girls demonstrated better emotion competence, emotion recognition, emotion strategy knowledge and deployed more cognitive strategies than boys (Colle & Del Giudice, 2010). Other research has found that boys used more suppression than girls, as did younger children of both genders (Gresham & Gullone, 2012; Gullone et al., 2010). However, other studies have not found any differences between gender (Endrerud & Vikan, 2007; Schwartz & Proctor, 2000) or age (Endrerud & Vikan, 2007; Gresham & Gullone, 2012) in emotion regulation. Consequently, any prudent researcher will need to consider a child's age, gender and ethnicity as variables when examining emotion regulation strategies.

Parenting and Emotion Regulation

In reviewing the research and literature to examine factors impacting on the development of a child's emotion regulation, parenting was a prominent theme. The ability for a child to regulate emotions is learned, to a large extent, through the child's interactions with his or her parents (Gottman, Katz, & Hooven, 1997). Naturally, parenting is not the only factor of significance; otherwise the emotion regulation skills of children raised by the same parents are unlikely to differ. Theorists and researchers have suggested several interactions which operate in conjunction with parenting to explain how a child has come to regulate his or her emotions in a particular way. Gottman et al.'s (1997) model states that parenting and a child's physiology are the two main ingredients for a child's emotion regulation skills. Southam-Gerow and Kendall (2002) support the suggestion that

family context (such as parenting practices) and temperament are the two main variables intrinsic to emotion regulation development. However, research by Jaffe, Gullone and Hughes (2010) demonstrate that nurturing and supportive care-giving practices are vital for adaptive emotion regulation development, even in the face of differing temperaments. Morris, Silk, Steinberg, Myers and Robinson (2007) present a tripartite model where a child's characteristics (such as reactivity, fearfulness, inherited emotional traits) moderate the interaction between family characteristics (parenting practices and the emotional climate of the family) and a child's emotion regulation.

Specific parenting behaviours or styles may be associated with how a child regulates emotions. In particular, nurturing/warmth, hostility and parent expectations for a child seem to play a role in constructs that are aligned with children's emotion regulation (Morris et al., 2007). For example, maternal warmth is positively correlated with child behavioural self-control (von Suchodoletz, Trommsdorff, & Heikamp, 2011), maternal support of child emotional expression is positively correlated with child use of constructive coping strategies (Chan, 2011) and maternal sensitivity and support is positively correlated with preschooler self-control (Clark, Menna, & Manel, 2013). Authoritarian (highly demanding and punitive, with low levels of warmth/nurturing) parenting is negatively correlated with children's coping efficacy (Zhou et al., 2008).

Most theorists and researchers acknowledge that the ingredients for a child's emotion regulation are not purely additive. Good parenting plus an easy temperament plus intelligence plus positive life experiences do not necessarily equal robust emotion regulation skills. More specifically, parenting likely interacts with child factors to create the environment in which emotion regulation develops. Children evoke particular parenting reactions, which then elicit certain behaviours from the child, and so on (Dennis, 2006; Eisenberg et al., 2010; Morris et al., 2007). Additionally, it is possible that the reciprocity of parent and child behaviours has a greater effect for older than younger children (Rothbaum & Weisz, 1994). Nonetheless, research suggests that the presence of nurturing caregivers is vital to

enable a child to develop adaptive patterns of emotion regulation, regardless of temperament (Jaffe et al., 2010).

So, it is clear researchers and theorists agree parenting plays a major role in the development of emotion regulation in children, but how exactly does this happen? According to Thompson (1991), parents directly teach, selectively reinforce and clearly demonstrate emotion regulation as they interact with their children. They further influence the development of emotion regulation through modelling affective behaviours and controlling the child's environment to manage opportunities to experience emotion. Over the course of development, a child's interactions with his or her parents in emotional contexts teach the child that certain strategies may be more useful for reducing emotion than others (Sroufe, 1995). Eisenberg, Cumberland and Spinrad (1998) suggest parental socialisation affects emotion regulation in three ways: parents' reactions to the child's emotions; parents expression of emotion in the family milieu or towards the child and; how parents talk about emotions. The effects of parenting practices on a child's development of emotion regulation are so potent, that they can even outweigh or buffer the effects of maltreatment. Shipman et al. (2007) demonstrated that, although overall maltreatment is linked with poorer emotion regulation, parental awareness and support of emotions and emotional coaching can have a protective effect outside the maltreatment and can foster robust regulatory skills.

Gottman, Katz and Hooven (1996) examined parental meta-emotion philosophy and its relation to parenting practices which relates to children's ability to regulate their physiological responses, and in turn, their emotion regulation. Unfortunately, their investigation did not examine patterns of emotion regulation, but inferred a child's ability to down-regulate emotion based on parents' report. A number of issues with the work make it difficult to use broadly in clinical settings. Firstly, the assessment process was highly labour-intensive involving obtaining physiological measures, and coding children's behaviours, parent-child interactions and parent interviews. Secondly, the age of the children involved (5-8 years) means this study does not provide an understanding of the patterns of emotion regulation across

school-aged children. Even so, this study was a carefully constructed investigation which demonstrated a number of direct and indirect pathways between how a parent thinks about emotion and their child's ability to control their emotions.

Children's emotion regulation can also be impacted by how parents react to their child's expressions of positive and negative emotions (Eisenberg et al., 1998). For example, negative responses to a child's emotional expression lead to the child using avoidance techniques to manage unpleasant emotions. A related study has demonstrated how punitive or minimising parental reactions to emotional expression relate to low socio-emotional competence (Jones, MacKinnon, Eisenberg, & Fabes, 2002).

Emotion Regulation Summary

In summary, emotion regulation develops from infancy in a hierarchical fashion. The process of emotion regulation development is closely linked with the acquisition of other developmental skills and processes, such as language acquisition and social, cognitive, motor and physiological development. After considering the research and academic literature on children's regulation, it is possible to answer some of the broad guiding questions asked at the start of the review.

Firstly, *how do researchers and clinicians conceptualise children's emotion regulation and is there a framework researchers use to study the construct?* Researchers and theorists seem to have a clear idea about how emotion regulation develops throughout the lifespan. For example, the five phases outlined by Holodynski and Friedlmeier (2006) marry well with the progression of emotion regulation described by Thompson and Goodvin (2007). However, no one single conceptualisation of children's emotion regulation is used in research. As no unifying conceptualisation or framework of adult and/or children's emotion regulation has been developed, most child studies use frameworks derived from or based on adult frameworks, such as the five stage process model of emotion

regulation or the ways of coping model. This omission has also been identified by others in the child emotion field (Camras & Shuster, 2013). As indicated briefly in the literature review, this approach is problematic, as strategies which might be considered useful in an adult context, may not be equally useful in a child context. Additionally, emotion regulation skills are still developing rapidly during childhood, and are bound by the cognitive, social and physical development of the child. Thus, the appropriateness of borrowing strategies from the adult literature should be questioned.

Secondly, *how do researchers and clinicians measure emotion regulation and is there a standard or useful approach to operationalising the construct?* A considerable range of procedures have been used to examine children's emotion regulation in research, from neuro-imaging to behavioural observations to self-report and other-report measures. There currently appears to be no "gold standard" approach. However the literature again draws heavily on ideas from adult emotion regulation and most often examines reappraisal and suppression as regulatory tools; perhaps to the exclusion of other emotion regulation strategies.

Thirdly, *what factors are believed to contribute to the development of emotion regulation and how are they conceptualised and assessed?* Several factors have been identified as having a role in how or why particular styles or approaches to emotion regulation are used. Key factors appear to include the age and gender of the child, as well as how the child is parented.

The final guiding question was *how has emotion regulation been examined in the past, what are the conclusions drawn and what research openings remain?* This question drives the following chapters and provides a rationale for the research aims and objectives, which follow.

Research Statement

After reviewing the literature on children's emotion regulation, a clearer picture has been gained about research opportunities and gaps. Despite the proliferation of literature into children's emotion regulation, there still appears to be a number of questions within the research field which require answering. First, is there a way to conceptualise emotion regulation in a way that unifies concepts of both adult and child emotion regulation? Second, what strategies and approaches to emotion regulation do *children* use? Third, how do these strategies relate to each other, both conceptually and in reality? And finally, what *groups* of strategies and *patterns* of emotion regulation do typical children draw on? However, there is no current measure of emotion regulation which can be used to answer these questions. Consequently, the overarching research aims for this series of studies is the generation and preliminary validation of a new measure for children's emotion regulation which could be applied to both clinical and research settings. The secondary aim is to use this measure to examine key domains and patterns of children's emotion regulation.

CHAPTER TWO

A FRAMEWORK FOR THIS RESEARCH

The Importance of Understanding Emotion Regulation

In examining the literature, it was apparent that there were many measures available which had been used in clinical and research situations. The key measures are discussed here in relation to their appropriateness for engendering a clear and detailed examination of children's emotion regulation.

The Emotion Regulation Checklist (ERC; D. Cicchetti, personal communication, 2009; Shields & Cicchetti, 1997) is a 24 item 10 minute screen that is completed by an adult familiar with the child. A 4-point Likert scale is used to rate their judgment of how characteristic each item is of a child. This is a highly useful brief measure when used to supplement research investigating children's emotion regulation. Unfortunately, the ERC uses evaluative and occasionally fairly sophisticated language which, though appropriate for use by trained counsellors, may not be appropriate for use by those closest to a child, such as his or her primary caregiver. Furthermore, although useful in research settings, the ERC alone is not comprehensive enough to provide a robust clinical picture of a child's emotion regulation patterns.

The Emotion Regulation Questionnaire for Children and Adolescents (ERQ-CA; Gullone & Taffe, 2012) is a 10 item child-report questionnaire based on the same questionnaire used for adults. The researchers identified a significant gap in our ability to assess the emotion regulation strategies used by children and adolescents, despite several tools being available for infants and adults. Several issues make the ERQ-CA inappropriate for this research. Firstly, the measure only has 10 items and only investigates two core strategy types; reappraisal and suppression, which is far too simplistic to gain the full picture of a child's emotion

regulation patterns desired for this project. Secondly, many of the items on the questionnaire relate the strategy to specific felt emotions (e.g. "when I am feeling happy, I am careful not to show it"), making it impossible to examine patterns of strategies used across emotions and contexts.

Another measure commonly used in both clinical and research situations is the Child Behavior Checklist (CBCL; Achenbach & Rescorla, 2001). The CBCL is a comprehensive and well-validated instrument aimed at assessing emotional and behavioural problems in children. As a general instrument, however, it does not specifically examine emotion regulation and is more sensitive to extreme emotional problems than the mild to moderate problems that might herald more subtle difficulties (Drotar, Stein, & Perrin, 1995). Additionally, research has demonstrated that although informants can accurately report on a child's externalising behaviour, some differences can be found between child and other informant reporting on the internalising behaviour (Hourigan, Goodman, & Southam-Gerow, 2011). Additionally, there is evidence to suggest accuracy of reporting on the anxiety/depression scale appears affected by gender (Clay, Surgenor, & Framptom, 2008). I suggest these discrepancies are due to the observable nature of externalising behaviour and the "mind reading" required for inferring internalising behaviour. Furthermore, the CBCL has a tendency to pathologise behaviours, is inclined to draw on negative aspects of child behaviours and is somewhat lacking in strength-based assessment (Belsky, 1997; Furlong & Wood, 1998).

Previous methods have taken a variable-oriented approach towards assessing children's emotion regulation, and this is reflected in the three assessment instruments described above. However, as noted by Maughan and Cicchetti (2002) the ability of a child to regulate their emotions is not something that is best understood as a simple score on an individual emotion regulation variable. A pattern-oriented approach, integrating a range of emotion regulation markers, enables a holistic and integrated view of a child's emotion regulation development (Bergman & Magnusson, 1997).

The California Child Q-Set (CCQ; Block & Block, 1980) is a 100 item measure undertaken as a sorting task and designed to assess aspects of a child's personality and behaviour. Again, this instrument does not specifically assess solely for emotion regulation and is more beneficial for research situations than clinical work (Heilbrun, 1985). However, rather than generating mean scores on a set of variables and comparing these to standardised norms, the CCQ helps to build a picture of a child's overall personality. Consequently, this approach to assessment can focus on ipsative results of the child rather than comparative results between the children.

In summary, although some instruments exist, they are either too superficial to generate a detailed understanding of a child's emotion regulation, not specific to emotion regulation or variable-oriented in a way that precludes the development of an integrated picture of a child's emotion regulation. This gap has also been identified by other researchers, and Bariola, Gullone & Hughes (2011) suggests future research should refine conceptualisations of regulatory types, skills and strategies that children use. In particular, experts suggest middle childhood as a critical period for the development of cognitive, emotional, psychosocial and neurological domains, all of which are important in the development of more advanced and complex emotion regulation strategies (Bariola, Gullone, et al., 2011; John & Gross, 2004). The kinds of emotion regulation strategies an individual is likely to use in a particular context has important implications for their socio-emotional experiences and functioning (Jaffe et al., 2010). Consequently, being able to clearly delineate these, and their relationship with any concurrent predictors, could provide the foundation work for successful prevention or interventions.

Introduction to the Studies

Research Aims

This series of studies aims to generate an appropriate measure of children's emotion regulation that can be used in research and clinical work and identify the

important types and patterns of emotion regulation strategies children use. Three studies will be undertaken to identify and organise emotion regulation strategies used by children, then identify key domains and patterns of emotion regulation strategies.

Study One: Item Development

Study One aims to develop approximately 100 items describing observable children's emotion regulation strategies using research measures, clinical measures and focus group data. The creation of an assessment measure begins with the development and generation of a domain of items that capture a broad, yet detailed range of children's emotion regulation strategies. This list needs to be comprehensive enough to provide a detailed picture of a child's emotion regulation strategies, without being so comprehensive as to be cumbersome to the assessor or informant. Based on similar detailed clinical and research measures (e.g. CBCL and the CCQ, 113 and 100 items respectively), approximately 100 items was deemed appropriate to the study aims and requirements. In order to access as large an item domain as possible, item generation is approached in two ways: firstly, by examining those items already available; and secondly, finding out what people who work with children could contribute. An initial examination of the clinical and research literature and assessment measures will be undertaken and appropriate items extracted. Next, a series of focus groups will be held on the subject of children's emotion regulation, involving experienced individuals from a range of child-focused disciplines. Part of the benefit of holding multidisciplinary focus groups is that the language will ideally become more neutral and less connected with a particular profession. A thematic analysis will then be undertaken on the session transcripts and possible items extracted. These items will be pooled with those drawn out of the assessment instruments and final items generated. The appropriateness and breadth of the item domain will then be assessed by the focus group participants and their feedback integrated into the creation of the final item domain.

Study Two: Measure Development

Study Two aims to examine and validate domain coverage and uncover inter-item relationships. The questions that this study needs to answer include: How do the items relate to each other – which items are similar and which are different? What concepts connect these items? Are there any items that overlap and could be removed? Finally, are there any gaps in the coverage of the domain of observable children's emotion regulation strategies? A multidimensional scaling (MDS) approach will be used to assess this by applying the technique to perceptual sorts of the items. Multidimensional scaling allows researchers to uncover the underlying structure of psychological domains using information about the (dis)similarity of items in that domain. Multidimensional scaling provides a geometric shape (e.g. a sphere) within which each item is represented by a point. Thus, the sorting results can be represented and viewed in a physical space. The physical distances between the pairs of points (items) as positioned on the model represent how (dis)similar those items are.

Multidimensional scaling has successfully been used to uncover understandings of the sequelae of child sexual abuse (Pechtel, 2008) and to refine the structure of an instrument assessing attachment (Kirkland, Bimler, Drawneek, McKim, & Schölmerich, 2004). Additionally, MDS was used in the original research which uncovered the hierarchical relationship between 135 emotion descriptors (Shaver, Schwartz, Kirson, & O'Conner, 1987). The classifications from this hierarchy are now commonly (and mistakenly) referred to as primary, secondary and tertiary emotions (W. Gerrod Parrott, personal communication, September 4, 2012). In light of these studies, MDS may be applied to provide conceptual structure to the emotion regulation strategies children use.

This analysis will be completed in two phases. Firstly, 30 adult laypeople will sort these items using a four step sorting procedure involving Grouping, Opposites, Partitioning and Addition (GOPA). Specifically, the item statements are printed on small cards and the participants are asked to group the statements together into 10-20 piles based on their similarity to each other. Next, participants indicate

which of the groups are the most opposite to each other. In the partitioning step, participants subdivide the groups into smaller subgroups of statements that are most similar to each other. Finally, the participants are asked to identify the most similar pairs of groups from their first sorting task.

Items that participants group together in the *Grouping* phase, but separate in the *Partitioning* phase should be relatively close in the model. Those that are sub-grouped together in the *Partitioning* phase should be even closer, but those paired as opposites in the *Opposites* phase should result in the greatest distances between them in the model (Bimler & Kirkland, 2003). The locations of the items in the shape provide an explicit structure to the latent relationships between the items and their organisation. When viewed as such, the items can be grouped into meaningful clusters which may represent emotion regulation groups. The position of the items along the axes (dimensions) of the shape allows the user to examine the shape for interpretable continuums of concepts within the construct domain. Additionally, by presenting the items in this format, the content coverage gaps can be identified and, if necessary, rectified.

The second phase of Study Two is designed to support the validity of the results in Phase One and, when collapsed with the phase one results, provide a more stable inter-item structure. This time, 30 individuals with a post-graduate qualification in psychology will replicate the above procedure. The results will be compared to then (if sufficiently similar) merged with the results from the lay sort.

Study Three: Emotion Regulation Domains and Summary Profiles

This study seeks to use the items and framework developed in Studies One and Two to delineate key domains and patterns of emotion regulation used by typically developing children. The items will be given to parents or caregivers of children aged 6-12 years. Using the method of successive sorts (MoSS), the parents will rank each item by how characteristic it is of their child. Multidimensional scaling, principal component analysis (PCA) and hierarchical and non-hierarchical cluster

analyses are then applied to the results to identify key emotion regulation domains and to construct profiles of emotion regulation. These profiles allow for both an individual ipsative-based and a group norm-based comparative examination of each child.

A Model of Emotion Regulation

Introduction

When I first set out to examine the emotion regulation strategies children use, I thought I would simply use an inventory or measure that was already available or in use. I assumed that there would already be some sort of instrument that would suit my purposes. However, this was not the case. Of the measures, inventories and instruments I was able to access, none were appropriate. As described in above, those available to me were either too resource intensive for practical clinical applications, not comprehensive enough, had a limited strength-focus or did not focus specifically on emotion regulation as the target construct.

This gap in clinicians' and researchers' "tool belts" provided me with the opportunity to build my own inventory from the ground up, yet also to build on what was already available.

As a concept and a construct, children's emotion regulation has been closely researched, yet remains generally ill-defined and poorly understood (Cole et al., 2004). Therefore, it was necessary to develop a framework to understand, explicate and describe the nature of emotion regulation examined here. Additionally, in creating an inventory, there needed to be a framework and theory with which to distil out items from those that are observable emotion regulation to those that are not. Consequently, my first task was to develop a theoretical model which could act as a foundation to this research.

The Goal-Directed Model of Emotion Regulation

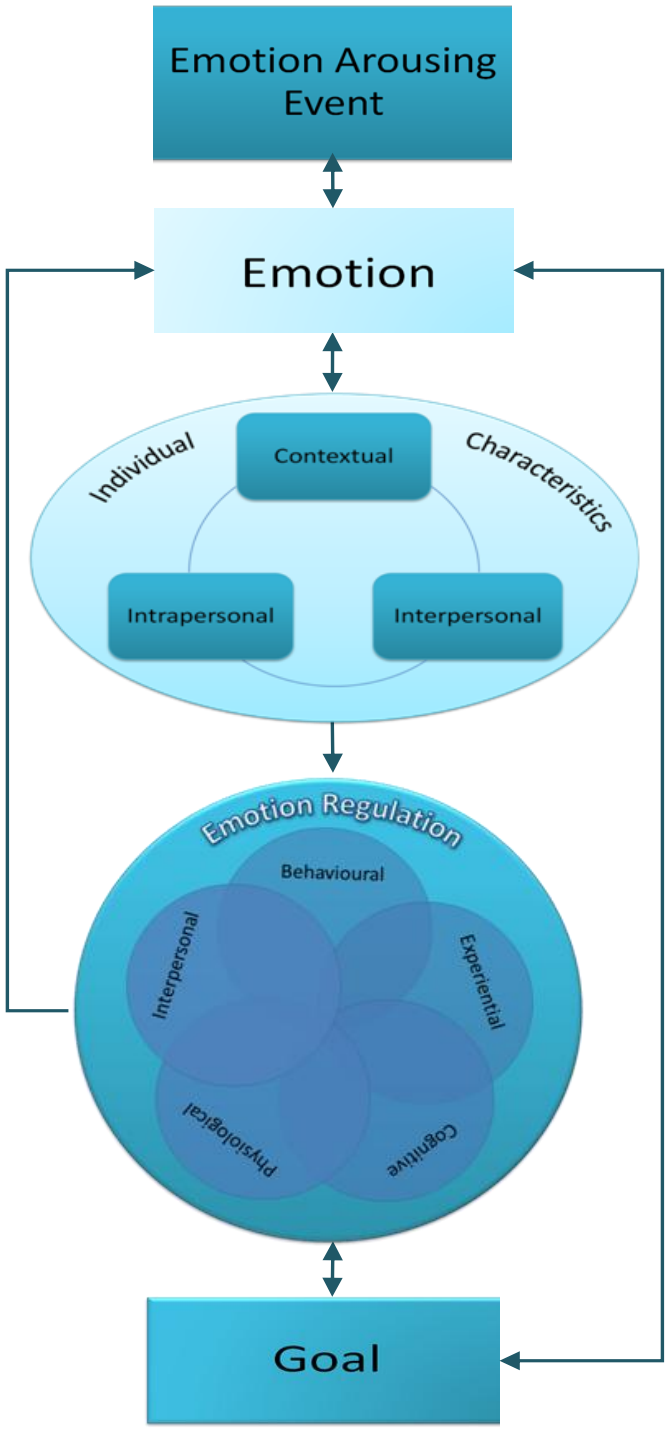

Figure 1. **Goal-directed model of emotion regulation.**

The model of emotion and emotion regulation depicted in Figure 1 illustrates the concepts of emotion and emotion regulation in an elementary (and understated) format. As mentioned previously, emotions act as a kind of "weather gauge" providing a first response system to events or challenges from the environment. Far from straightforward, they are complex, malleable and functional systems which have proven difficult to circumscribe (Gross & Thompson, 2007).

From the outset, this model frames *all* non-reflexive behaviours (including cognitive behaviours) as operating at least partially in the service of emotion regulation. We experience the world emotionally, and we are perpetually bombarded with stimuli that has the capacity to elicit emotion (Koole, 2009). Thus, we must continually apply regulatory processes to manage

this (Davidson, 1998). The word emotion stems from the Latin *emovere* or *ex-movere*. (*ex-* meaning out and *movere* meaning to move). Emotions are the internal states that activate us, that get us to move; hence motion is at the heart of emotion. For more than two decades now, theorists have emphasised the role of *actions* and *action tendencies* in relation to emotions and emotion regulation. Action tendencies are framed as flexible motor programmes that dispose us to act in a particular way (Barrett & Campos, 1987). Specifically, a person's ability to deploy a set of behaviours in response to events affecting goals and strivings (Campos, Campos, & Barrett, 1989).

Much behaviour becomes so automated, unconscious or habitual that the original emotional effect is negligible. However, what if one were to not complete the behaviour as normal, what emotional effects are evoked? If a person is concerned about keeping her job or setting an example to others or ensuring her workload is manageable, she does her best to ensure she arrives at work on time. If this is not a concern to her, what would motivate her behaviour? Thus, the behaviour of arriving at work on time can be considered emotion regulating (by preventing the emotions the above concerns might raise). As could related morning behaviours of making a quick breakfast of cereal as opposed to a lengthy breakfast of pancakes. When framed this way, all behaviours are designed to monitor, influence and adjust emotions and also to help evaluate and demonstrate emotions to achieve individual objectives in relation to an emotional context.

It is important to point out that the *anticipation* of an emotion-eliciting event is, of itself, an emotion-eliciting event. Emotion regulation can occur at all stages in the emotion generative process, even before the target emotional response has been elicited (Gross, 2002). Furthermore, emotion is both regulatory and regulated (Cole et al., 1994) and these processes are inherently intertwined. One current difficulty is our ability to empirically differentiate between the intensity of the emotion experienced, and the success of the emotion regulation strategies deployed (Kagan, 1994; cf. Koole, 2009). Additionally, as mentioned earlier, this research adheres to a single factor model of emotion and emotion regulation. The goal-directed model

of emotion regulation clearly demonstrates emotion and emotion regulation as part of the same process. However, they are described separately in this model so as to clearly delineate the processes and components involved.

The Event

The first stage of emotion requires an emotionally arousing event. Emotions are aroused when something of value (a goal) is to be won or lost (Campos, Mumme, Kermoian, & Campos, 1994; Frijda, 2007). This can be a positively-valenced event (such as a good mark or praise from a parent), a negatively-valenced event (for instance, being bullied), a conscious event (deciding to take up piano lessons), an event that occurs outside of awareness (memory of a holiday unconsciously triggered by a certain smell), an internal event (a thought) or an external event (moving house). Frijda noted that emotion eliciting stimuli are generally signals or symbols which arouse emotions by virtue of their link with expectations, associations, actions and concern relevance (1986).

The Emotion

The emotional system has been described as one which is constantly matching and evaluating situations in light of individual goals and, when a match is found, activates an automatic response designed to resolve the issue (Stegge & Terwogt, 2007). Thus, emotions can happen immediately upon the occurrence of the emotion-eliciting event, or they can develop over time. They are evoked through an evaluation[1] process (is the emotional event helping or hindering goal attainment?) as well as other cognitive processes (such as images, memories and thoughts) and non-cognitive processes (such as neurotransmitter or hormone changes) (Izard, 2009). The unique goals of the individual and the individual's characteristics are key to the quality and intensity of the emotion experienced, not the emotion eliciting event itself. Frijda referred to this process as "primary appraisal" (1986, p. 401).

[1] Please note, most theorist use the term "appraisal" to describe this process, I use "evaluation" so as to clearly differentiate between this and cognitive appraisal and reappraisal as an emotion regulation strategy.

So how does the evaluation of an event affect the emotion elicited? I have borrowed Lazarus and Launier's (1978) three categories of evaluation outcomes from the coping literature and related them to emotion regulation. An event can be considered irrelevant, meaning it is perceived to have no implication for the individual's goals. In other words, the individual considers him or herself to have no stake in the event; it simply happened. An event can be considered benign-positive, meaning the event is perceived as favourable to one's goals. Finally, an event can be considered as harmful, indicating some threat is perceived in relation to an individual's goals. Take, for example, an Australian and a New Zealand rugby fan sitting together watching the Bledisloe Cup as the final five minutes are counting down with scores tied. Both will likely be feeling anxiety, excitement and anticipation. However, at three minutes until the final whistle, the referee calls a penalty for New Zealand and the flyhalf scores a goal. Now the emotions between the two fans have altered drastically, because the same emotion-eliciting event has been evaluated differently by each of them in light of their individual, unique goals.

The bidirectional linking arrows between the emotion and the emotion arousing event indicates how the emotion arousing event and the emotion are reciprocal, yet independent processes (Gross & Thompson, 2007; Stegge & Terwogt, 2007). There is a continual, back and forth flow of emotion eliciting events and emotional responding (Gross & Thompson, 2007). To provide an example of this, a child who has spent time in an environment where expressions of sadness were responded to punitively may experience anxiety in response to initial feelings of sadness (Cole et al., 1994; S. Epstein, 1984). This example also reflects the reciprocal nature of the relationship between the emotion and those characteristics which make up the individual. More specifically, an individual's contextual, interpersonal and intrapersonal attributes help determine the meaning a person makes of the emotion that arises from an event and, consequently, the quality of the emotion itself. These are discussed further below.

Characteristics of the Individual

The emotion quality (such as surprise, anxiety, happiness, frustration, pride) and intensity elicited in relation to the emotional event and its relationship with individual goals depend on a number of individual characteristics, consolidated here into three main clusters: intrapersonal; contextual; and interpersonal. These characteristics are the lens by which a person views the relationship between an emotion-eliciting event and their goals. Consequently, they are at the heart of any evaluation or interpretation that is made about the event in relation to the goal, i.e. whether the event is helping, hindering, or irrelevant to goal attainment.

The coping and emotion literature refers to a process called *secondary appraisal* (cf. Frijda, 1986, p. 401; Lazarus & Launier, 1978). This is another evaluative process which occurs when the individual is appraising what strategies, resources and options are available to them at this time and in this context. It is the individual characteristics element of the emotion regulation process which informs the individual as to which regulatory strategies may or may not be used. Consequently, the secondary appraisal process is vital in determining the strategies a person ends up deploying (Lazarus & Launier, 1978).

These characteristics are also the framework under which a general pattern or flavour of emotion regulation strategies originally develop. As indicated by the model, the three groups are not mutually exclusive, and interact with each other in complex and reciprocal ways.

Intrapersonal

The personal characteristics of the individual are intrinsic to their emotional experience. These characteristics incorporate anything about an individual which might cause them to experience certain emotions. Naturally, cognitions, beliefs and values form an important part of this, as does an individual's temperament. Take the example of Jack who has just received a poor report card from school. If Jack believes when his mother comes home from work he will be harshly criticised by her, he will assign a different quality and perhaps intensity of emotion to the event

(mother coming home) compared with if he believes his mother will respond indifferently.

Of course, children are not blank canvases upon which the environment paints its creations. They come with their own set of genetically and physiologically derived biological conditions which interact with said environment; namely, a temperament. Commentators have proposed that temperament "provides the blueprint and foundations on which emotional development builds" (Southam-Gerow & Kendall, 2002, pp.191-192). As such, authors believe the emotion regulation skills and strategies that a child develops are both directly and/or indirectly influenced by the tendency of that child to become emotionally aroused (Calkins & Hill, 2007). True to the interactional and developmental theme this thesis follows, temperament is believed to also be moulded by a child's environment from the very start of infancy (Calkins & Hill, 2007; Rothbart & Sheese, 2007). As a consequence of owning a temperament, children experience unique and differing thresholds for the arousal and tolerance of certain emotions (Thompson & Goodvin, 2007).

Beliefs, values and cognitions held by a child are heavily influenced by a diathesis-stress interaction. More specifically, the experiences of the child, (including those patterned out of attachment bonds and family dynamics), collaborate to varying degrees with biological factors to imprint ideas about what to expect from the environment (Belsky, 1997). These ideas align closely with the concept of how *core beliefs* or *schema* develop in cognitive-behaviour theory and how *internal working models* develop in attachment theory (cf. A. T. Beck & Alford, 2009; Bowlby, 1988; Bretherton, 1985; Bretherton & Munholland, 2008). Specifically, that the intrapersonal characteristics of the child develop out of continued interactions with the environment (including attachment figures). Through these, the child develops internal representations of the world, other people and the self. These representations help the child know how to act and what to expect in each new situation (Bretherton, 1985). Thus, individuals' unique past experiences of life, events and other people flavour the future understandings and interpretations they

make about the world. Jack may believe his mother will be uninterested in his report because previous comparable experiences with his mother, a view of others as indifferent or uncaring and himself as unimportant have imprinted this framework in him (Bowlby, 1988).

Contextual

These are the environmental and situational characteristics that make each emotion-eliciting event unique, and consequently, impact on the quality and strength of emotional arousal. The concept of context playing a fundamental role in emotion regulation has been recognised in theoretical understandings of emotion regulation, but rarely been practically considered or applied (Aldao, 2013). Contextual characteristics may affect the intensity of an emotion, or they may change the quality of the emotion entirely. Put Jack's poor report in the context of him also having been caught stealing from a classmate that day, and Jack is likely to experience a different quality and intensity of emotion mix while waiting for his mother's return.

Interpersonal

Interpersonal factors play a highly influential role in human behaviour (Aldao, 2013). The interpersonal aspects that filter an emotional experience are entwined closely with the contextual and intrapersonal aspects, as is indicated by the linking arcs between all three characteristics. The transactional nature of interpersonal interactions helps form a child's intrapersonal structure, as these interactions are pivotal to the internalisation of a child's belief system. Early dyadic interactions with a caregiver in emotion-eliciting situations are integrated into the child's emotion regulating repertoire (Calkins & Hill, 2007). The patterns a child uses to respond in interpersonal situations are largely founded on these early transactions and they become part of the intrapersonal characteristics.

The interpersonal context of the emotion-eliciting event impacts on both the strategies deployed to regulate and the resultant success or failure of the strategy to regulate the emotion. This is especially true of children (as opposed to adults;

Rimé, 2007). The social sharing of emotion is a way by which that emotion can be regulated. Of course, the interactional partner's response is an important part of the success or failure of the up-regulation, down-regulation or maintenance of the emotion. Imagine one of Jack's emotions around his report card is guilt about disappointing his parents. Jack's guilt may well be enhanced (or up-regulated) if his mother responds severely to his poor report. But say Jack's interactional partner is his dad, who responds by telling him that one bad report card is not a big deal and then suggests some backyard cricket. In this interpersonal transaction, Jack's guilt may well be reduced (or down-regulated).

Interpersonal expectations about how an interactional partner is likely to respond in emotion-eliciting situations and what has or has not worked in the past can govern the interpersonal approach s/he uses to regulate emotions. Jack may avoid interactional situations, talk about his own disappointment, distract himself with other activities, or attempt to ingratiate himself in other ways (for example by telling a funny story from school) and so on. If the early interactions a child experiences have been, by and large, problematic, they are likely to lead to a heavy reliance on specific strategies or approaches which work in that problematic context. Unfortunately, such strategies may not generalise easily across interpersonal interactions or contexts.

When an individual becomes heavily reliant on patterns drawn from a limited selection of emotion regulation strategies, flexibility across situations becomes restricted and the likelihood of drawing on inappropriate or ineffective strategies increases. This has the potential to lead to ongoing difficulties with emotion regulation (Chaplin & Cole, 2005), further compounding their effect on outcomes.

Emotion Regulation

An important factor of these three characteristics is how they influence the type of emotion regulation strategy employed. Intrapersonal experience tells a person what is likely to work based on what has worked for them before. Contextual and interpersonal factors dictate the appropriateness of particular strategies in

particular situations and with particular people. Because every emotional event is unique, and a myriad of factors impact on the success of an emotion regulation strategy, a fair degree of flexibility is important in their deployment. Many theoretical models of emotion regulation (and coping) have framed various strategies as adaptive or maladaptive (Aldao, Nolen-Hoeksema, & Schweizer, 2010). However, the approach observed throughout this research considers no one emotion regulating strategy or behaviour to be inherently adaptive or maladaptive (Thompson & Goodvin, 2007). Instead, it is the context in which the strategy is used and the ability for the strategy to help or hinder a person's goals that makes the strategy useful or problematic at that time. Emotion regulation cannot be differentiated by the specific emotion which is activated and is instead defined by the systematic changes related to the activated emotions (Cole et al., 2004)

Once the emotion arousing event (or the anticipation of an emotion arousing event) occurs, the emotion and regulation of the emotion take place. Regulation may occur in an effort to effect the occurrence of an emotion prior to it being felt (hence the returning arrow back to the emotion component from the emotion regulation component), the quality of the felt emotion, the intensity of the felt emotion, or all three (especially in complex emotional situations). As is indicated by the model, there are several elements to emotion regulation.

Five Elements of Emotion Regulation

Nico Frijda describes the handling of emotions, or regulation, as referring to all processes that function to modify emotions (1986). The model presented here divides these processes into five elements, including: a *behavioural*, an *interpersonal*, an *experiential*, a *cognitive* and a *physiological* element. As indicated in the model, all of these elements can occur simultaneously and are interwoven with the other elements.

These five elements are derived from regulation domains and processes noted by several theorists. In his key text on the subject, Frijda (1986) observed emotions to be regulated through behavioural means, cognitive means, physiological means and

social (or interpersonal) means[2]. Calkins recognises that emotional responding is a multilevel process and links neurological, physiological, cognitive and behavioural processes as being recognised as fundamental to emotion regulation (Calkins, 2010). Lazarus and Folkman (1984) clearly described emotion-focused coping as occurring through cognitive means and behavioural means. Cole et al. (2004) note emotion regulation as including changes "in the emotion itself...", suggesting they believe emotion regulation to occur through experiential means. James Gross (1998b, 2002) describes emotional response tendencies as requiring regulating across behavioural, experiential and physiological domains. Rimé (2007) described the role of regulating emotion through interpersonal processes. Thus, the five elements described here are emotion regulation processes recognised by several authors.

The *behavioural* component is a key focus of this research endeavour, and describes the way emotions can be regulated behaviourally. Jack's unpleasant emotions might be reduced by a behavioural strategy, such as by playing backyard cricket, doing some artwork or scratching repeatedly at his arm. The situation selection, situation modification, attentional deployment and response modulation families of Gross' model could all be behavioural in nature.

Another aspect of how emotion regulation may be achieved is *interpersonal* regulation. Interpersonal strategies are those that regulate emotions through interactions with others. Examples might include an adult discussing the emotional event with another adult, a child making a joke to deflect focus away from the emotion or the elicitation of soothing gained by a baby when she cries. The process of the interpersonal strategy may elicit strategies that relate more to other components of the emotion regulation model. For example, cognitive strategies (through, say, verbalising a reappraisal of the event or emotion) or physiological strategies (for instance, the mother who helps calm her baby by rocking her). Some theorists separate interpersonal emotion regulation from regulation by cultural

[2] Please note, Frijda's approach regarding social regulation attends to both regulating for the purposes of social convention, as well as via social processes. My interpersonal element attends only to the latter of these.

means (Mesquita & Albert, 2007). However, cultural regulation is relevant to two processes within the goal directed model of emotion regulation: the cultural contribution to the significance of the goal in question and the interpersonal regulation undertaken between people from within an individual's culture.

The *experiential* component of emotion regulation describes the way in which an emotion is experienced. The same emotion can be experienced in very different ways. For example, the experience of fear is often sought when people attempt to skydive. However, the same emotion is experienced very differently when the parachute fails to open. Consequently, the meaning making and meta-emotions that occurs around the emotional event affect how it is regulated experientially.

Naturally, cognitive appraisal forms a part of this experience (as do the other components), as the experience of skydiving above is now evaluated as likely fatal, as opposed to merely risky. Appraisal or evaluation of the event in relation to goals plays a significant role in determining the difference between an emotion experienced as positive or negative (Lazarus, 1991). Cognitive reappraisal is the regulatory process by which the emotions are managed by thinking about the event differently (Lazarus & Folkman, 1984). The *cognitive* component can be differentiated from the experiential component as it is the way a person thinks about an emotional experience, whereas the experiential component is the intensity and quality of the emotional experience itself.

The *physiological* component of the model describes the ways in which emotions might be regulated physiologically. Additionally, physiological regulation refers to the biological and neurobiological functions which take place as part of the regulation process[3]. Think about the person who (before the equipment fails) seeks "a rush" through engaging in high risk sports such as skydiving. This person is attempting to up-regulate the physiological experience of fear. Or the child who runs around the house in joy at being told she can have her favourite treat. She is

[3] A broader discussion of this is covered in The Physiology of Children's Emotion Regulation in Chapter One.

possibly attempting to increase and maintain the experience of her joy by changing her physiological response. Jack might find that on previous occasions, taking a series of deep breaths has calmed him down or running around the back yard has expelled nervous energy. Although this initially appears to be a behavioural strategy, Jack is working behaviourally to regulate his emotions by physiological means. The behavioural strategy is a simple step to allow the deployment of physiological strategies. Physiological regulation could also include the ingestion of medication or non-prescribed/recreational drugs, including alcohol.

As indicated throughout the previous examples given to illustrate emotions and their regulation, any one individual emotion regulation strategy can draw on several (or all) of the components of emotion regulation. For instance, if a person attempts to down-regulate anxiety by smoking a cigarette, this strategy could be behavioural (the repeated smoking behaviour provides a reassuring routine), physiological (by the active ingredients having a short-term physiological effect impacting the emotion), experiential (the experience of distress is somewhat reduced by temporarily increasing a contradictory emotion), or cognitive (attention is shifted temporarily from the source of the distress). This model does not presume that the strategy in use belongs more to one component than another. Instead, it encourages the model user to be aware that strategies can address emotions through behavioural, interpersonal, experiential, cognitive and/or physiological means.

Goal

Emotions are elicited in relation to anything of meaning or significance to the person. As mentioned above, these are simply described in this research as a person's goals. The individual goal, or concern (Frijda, 2007) is what gives rise to emotions in the first instance and is what makes an event "emotion eliciting". If an event or situation is not evaluated as affecting our goals, we are unlikely to experience an emotional response. Emotions are likely to be positively valenced if the event moves the individual closer to a goal and negatively valenced if it impedes a goal (Gross & Thompson, 2007). This is the core aspect of emotion

generation and, consequently, is the key to emotion regulation. We have a tendency to try to down-regulate emotions which take us further from a goal and we work to maintain or up-regulate emotions which are likely to move us closer to a goal or concern (Frijda, 1986), although the reverse can also be true (for instance, when we ruminate on situations which have elicited anger or guilt; Thompson, 1994). Emotions change as the related goals shift, or meaning associated with the goal shifts (Gross & Thompson, 2007).

Linking the Model Features

Each of the features of this model is linked to one or several other features by directional arrows. These arrows indicate the potential interacting relationships between the features. The emotion arousing event and the emotion are connected with a bi-directional arrow, indicating that the event can elicit an emotion, but also the resultant emotion can further elicit another emotion arousing event. Take for instance Jack, who bravely tells his mother about his poor report card. Depending on Jack's circumstance and, this could elicit a range of emotions, but let's suggest that the primary emotion he experiences is sadness. This sadness can also act as an emotion arousing event as it may subsequently elicit anxiety about crying in front of his mother. Thus, emotions, and the events that cause them can be intricately intertwined.

There is also bi-directional link between the emotion and the child's individual characteristics as, although the emotion experienced will depend on these features, these features are also built out of such emotional experiences. More specifically, the quality and intensity of the emotion depends on intrapersonal, contextual and interpersonal components, but these components also develop out of repeated exposure to multitudes of emotion-eliciting events.

Note the unidirectional arrow from the individual's characteristics to the emotion regulation component of the model. This is to signify that the emotion regulation strategies in themselves do not directly influence the individual characteristics. Instead, the entire emotion regulation process modifies this relationship by

repeated exposure to the results of emotion regulation strategy deployment over time. In other words, by learning what works and what does not in similar situation. For instance, imagine Jack's mother does something surprising. She is not dismissive, she is not harshly critical, but instead responds to Jack's expression of guilt in a supportive and soothing manner. Jack's original emotion regulation strategy (say, of reducing guilt by blaming the teacher for picking on him) is no longer needed. His goal of (say) avoiding disappointing his mother has not been adversely affected, so the guilty emotion is no longer as prominent. This is a new interpersonal, intrapersonal and contextual event which will flavour his individual characteristics, but not directly from the use of a particular strategy; instead through the effects of strategy use on the goal and the emotion.

There is a further bi-directional link between the emotion regulation itself and the goal. Consider the emotion arousing event that, through the deployment of a strategy to up-regulate an emotion, moves a person closer to the related goal. The success of this up-regulation in enabling the goal may lead to its continued use. If the up-regulation was not serving the purpose of goal attainment, then theoretically its use in relation to the index emotion-eliciting event may be short lived (although this is not necessarily the case).

Model Summary

The goal-directed model of emotion regulation outlines the approach to emotion regulation taken with the current research and aligns with the definition of emotion regulation outlined in Chapter One. Namely, emotion and emotion regulation arise in the context of an emotion-eliciting event. The event elicits emotion by causing a shift in a person's relationship with an individual goal (which may or may not align with a collective goal). The quality and intensity of the emotion aroused depends on how great the perceived shift and the individual characteristics of the person experiencing the shift. These individual characteristics include interpersonal, contextual and intrapersonal factors. Emotion regulation occurs to help the individual manage the emotions that occur with the relationship shift and strategies can involve behavioural, interpersonal, experiential, cognitive

and/or physiological measures. The reciprocal arrows depicting the relationships between the model components serve to demonstrate their complex and non-sequential nature.

In summary, in the preceding chapters, a clear definition and model of emotion regulation has been outlined which considers contextual factors, specifies the importance of the individuals' goals and can be applied to any age group, despite being developed within a child-focused research context. This definition and goal-directed model now provides an underpinning for the following three studies. This groundwork is particularly important for the first of these studies, which undertakes item development for a measure of children's emotion regulation. Specifically, the model and definition can help guide the extraction of strategy descriptors from literature and existent measures, can provide a reference to help frame the language of items themselves and can help guide decisions about which items should be included or excluded.

CHAPTER THREE

STUDY ONE: ITEM DEVELOPMENT

The current research study uses focus group data, literature examination and an examination of the clinical and research tools to identify a domain of items that comprise an inventory of children's emotion regulation strategies. As outlined in Chapter Two above, the main goal for Study One is to develop approximately 100 items describing observable children's emotion regulation strategies.

In preparation for developing a measure such as this, several key questions needed to be answered that determine the final measure and how it will be used. These included: what age range will the measure target? Who will provide the information about the child's emotion regulation? What format will the measure items take? How will the information be gathered from informants? These questions are addressed here.

Children: Definition and Rationale

Although the model explained earlier is designed to be applicable to people of any age, this research is targeted at children. The unifying concept of *child* spans an enormous range of developmental changes, from infancy through to late adolescence. For the purposes of this study, it is important to define what is meant by *child* and justify why this age group was selected. As described above, much of the interpersonal patterning a child develops are laid down in the very early years via the attachment relationships he or she forms, and often these patterns flow through into later years (Englund, Levy, Hyson, & Sroufe, 2000; Main & Cassidy, 1988; Waters, Merrick, Treboux, Crowell, & Albersheim, 2000). Consequently, a child who has developed unhelpful emotion regulation skills as a young child is likely to also have related issues in middle childhood, adolescence and adulthood

(Chaplin & Cole, 2005; Eisenberg et al., 1997; Murphy, Eisenberg, Fabes, Shepard, & Guthrie, 1999).

In the late preschool years, children become more oriented towards their peers and begin to test the waters in their peer interactions. These peer relationships become increasingly important as the child matures. Theorists, including Piaget and Vygotsky, proposed that peer relationships contribute as much, if not more, to a child's development as relationships with adults (Harris, 1995; Tudge & Rogoff, 1999). However, the emotion regulation strategies a child has learned to use in the home environment may not generalise well to a peer context (Thompson & Goodman, 2010). One important developmental skill acquired during middle childhood is the ability to engage and interact successfully with peers (Hartup & Moore, 1990) and this skill acquisition can be severely disrupted by an inability to effectively regulate emotions (Bolger & Patterson, 2001; Hubbard, 2001; Shields & Cicchetti, 2001). The ongoing consequences of disrupted skill acquisition relating to social competence can be seen in some recent results out of the Dunedin Multidisciplinary Health and Development Study (Olsson, McGee, Nada-Raja, & Williams, 2012). The researchers demonstrated that child and adolescent social connectedness was substantially better than academic achievement at predicting overall well-being as an adult.

As mentioned by Underwood et al. (2006), a number of classic developmental theories, including the Freudian, Piagetian and Eriksonian suggest middle childhood as an ideal stage for children to learn to regulate emotions. Importantly, typically developing children at this age are beginning to understand the implicit rules of emotional expression and emotion regulation. If, as described by Gross and Muñoz (1995), emotion regulation is a vital precondition to overall mental well-being, issues need to be identified and interventions implemented as early as possible.

In sum, middle childhood is an important period for emotion regulation research. This appears to be when emotion regulation difficulties often emerge as children

learn to independently negotiate a range of novel situations, including school and peer interactions. This is also an age where emotions, emotional expression and emotion regulation becomes more complex (Holodynski & Friedlmeier, 2006). Importantly, a child's social competence at this stage can predict later social competence and even overall well-being. Additionally, a child's ability to master social skills may well hinge on their ability to regulate their emotions. According to some theorists, this age appears to be a time that may be well-suited for emotion regulation-focused interventions. Preliminary research has generated promising evidence in support of targeting interventions at children in the middle school years (Bidgood, Wilkie, & Katchaluba, 2010; Riggs, Greenberg, Kusché, & Pentz, 2006). For these reasons I have chosen to concentrate on the 6-12 year age group in these studies.

Assessment Approach: How to Measure Children's Emotion Regulation

As mentioned earlier, there are a number of assessment tools available that can be used to measure emotion regulation in children, however, for varying reasons already discussed, none were suitable to employ for the purposes of this research approach. Consequently, I needed to develop a way to capture children's emotion regulation that would a) provide a data format that could be used to generate profiles of emotion regulation; b) sample a full range of emotion regulation strategies and; c) represent the rich complexity found in children's emotion regulation.

A key decision in this process was whether to develop a measure that a child could use as a self-report or a measure that is used by others to report on the child. Although both these options have their advantages and disadvantages, the latter of the two was selected for two main reasons. Firstly, emotion-based self-report measures are available for this age group, however, the concepts they capture are very simplistic. For example, items on the Beck Youth Inventories for Children and Adolescents: Second Edition (J. S. Beck, Beck, Jolly, & Steer, 2005) include: "I feel like a nice person"; "I feel like I am stupid" and; "People make me mad". The

Children's Depression Inventory (Kovacs, 1992) asks the child to rank items by ticking a box next to "I feel like crying every day", "I feel like crying many days" or "I feel like crying once in a while". The ERQ-CA (Gullone & Taffe, 2012) dichotomises items along the two factors of reappraisal (e.g. "when I want to feel less bad, I think about something different") and suppression (e.g. "I control my feelings by not showing them"). Additionally, the ERQ-CA is designed for use with children aged 10-18, overlooking children aged 6-9.

Although the ability to examine emotion regulation using the child's voice is important, the ability to assess children's emotion regulation in all its rich complexity is compromised by the simplified concepts captured by such items. To thoroughly examine the patterns of emotion regulation children use, a complex item domain needed to be generated and data from such items can best be collected through adult informants. Although parent report will be used during this research, possible informants could include a parent, a teacher, a teaching aide, a social worker, a therapist or any other adult who knows the child relatively well. Visibility of behaviours influences accuracy of reporting and, given observable, concrete behaviours to report on, other informants can be accurate reporters (Hourigan et al., 2011).

The second reason relates to insight and cognitive maturity. Depending on the informant, report measures are subject to a number of biases. Children in the 6-12 year age group can be limited in their ability to report on their emotional responses, which could contribute to a response bias in this research. More specifically, much emotion regulation becomes automatic and unconscious with regular use (Chaplin & Cole, 2005; Davidson, 1998). Consequently, the child may not be aware of the behaviour, let alone be able to link it as a specific emotional response.

After deciding on who would report on the child's emotion regulation for the purposes of this research, a decision needed to be made about how that person would use the items. The items needed to be observable (thus behavioural) and

specific (thus lower order). This series of studies will use sorting tasks to help determine the relationship between items and how styles of emotion regulation group together. However, sorting tasks require time for an informant. This time consideration may be important and useful in research settings, but becomes clinically impractical. Therefore, the items should be flexible enough to be applied to a more user-friendly format, such as Likert scales.

Focus Groups: Definition and Rationale

Focus groups can be described as a group of people who have some characteristic in common and who "come together to discuss an issue of specific interest to the researcher" (Asbury, 1995, p. 415). Focus groups were elected over an interview or survey approach due to the unique ability of the group situation to elicit dialogue that may not have arisen during individual situations. Focus groups have been shown to be useful in generating information to aid in the construction of questionnaires or research items (Krueger & Casey, 2009).

METHOD

The first step in Study One was to conduct a broad evaluation of the significant theoretical and research literature from the last twenty years regarding the emotion regulation processes and practices that are used by children 6-12 years old. Although this literature did not produce a great quantity of specific items, it did generate a selection of higher-order, thematic ideas of emotion regulation, and a framework on which to base the next two phases of research.

Next, an extensive review was undertaken of the items of partially or wholly relevant standardised clinical and research measures, such as: Beck Youth Inventories for Children and Adolescents – Second Edition (J. S. Beck et al., 2005); Behavioral and Emotional Rating Scale – Second Edition (M. H. Epstein, 2004); CCQ (Block & Block, 1980); CBCL (Achenbach & Rescorla, 2001); Children's Sadness Management Scale (Zeman, Shipman, & Penza-Clyve, 2001); Conners' Rating Scales

– Revised (Conners, 1997; Conners, Sitarenios, Parker, & Epstein, 1998); Emotional and Behavior Problem Scale, Second Edition (McCarney & Arthaud, 2001); ERC (D. Cicchetti, personal communication, August 23, 2009; Shields & Cicchetti, 1997); Emotion Regulation Index for Children and Adolescents (ERICA; MacDermott, Gullone, Allen, King, & Tonge, 2010); ERQ - CA (Gullone & Taffe, 2012); Internalizing Symptoms Scale for Children (Merrell & Walters, 1998); Millon Pre-adolescent Clinical Inventory (Millon, Tringone, Millon, & Grossman, 2005); Revised Child Anxiety and Depression Scale (Chorpita, Yim, Moffitt, Umemoto, & Francis, 2000); Scale for Assessing Emotional Disturbance (M. H. Epstein & Cullinan, 1998); Social-Emotional Dimension Scale (Hutton & Roberts, 1986).

This examination generated a list of 404 initial item descriptors describing various strategies children might use to regulate their emotions. Each descriptor was assessed for inclusion in terms of three criteria. The first criterion for an item descriptor was whether it fit my definition: a process by which people monitor, influence and adjust their emotions and how they evaluate and demonstrate emotions to achieve their individual objectives in relation to their emotional context. The next criterion was whether it married with my goal-directed model of emotion regulation. In particular, the item needed to be able to be framed as a strategy or behaviour independent of goals and/or context. For example, the item "Is jealous and envious of others" found on the CCQ (Block & Block, 1980) is specific to certain emotions. The item "Gets angry when told he/she is wrong…" from the Emotional and Behavior Problem Scale (McCarney & Arthaud, 2001) links the emotion (and the regulating behaviour) to a specific context or situation. The final criterion was whether the item could be reported by another. If the item was not able to be observed or inferred in behavioural form, then it was not included as an item descriptor.

The third phase in Study One involved conducting focus groups with New Zealand professionals from a range of disciplines who work closely with children in the 6-12 year age group.

Participants

The focus group participants were 23 professionals (19 female; 17 Pākehā/New Zealand European, 2 from overseas, 4 Māori, Māori/Pākehā or Māori/Samoan; $Mean_{age}$ = 45.07) who had at least three years experience working closely with children aged 6-12. This sample included individuals from clinical psychology, educational psychology, child and adolescent psychiatry, resource teaching learning and behaviour, education, psychotherapy, counselling, social work and paediatric medicine. Furthermore, many of the participants had children or grandchildren of their own from which they could draw further experience. Participants were located by means of a snowballing method initiated through individuals and organisations in the Manawatū area known to work with children in this age group.

Two of the groups consisted of participants who knew and worked with each other, and two consisted of heterogeneous participants, some of whom knew or worked with each other. Although a group of homogenous strangers is often cited as the ideal participant blend for focus groups, often this is not possible. This is especially true of certain specialist communities (as is the situation in this study), and is generally not considered a great problem for the validity of the data (Krueger, 1995). Nonetheless, each of these participants had one key characteristic in common: frequent professional experience with children aged 6-12 years.

Procedure

This study was reviewed by the New Zealand Health and Disabilities Ethics Committee as an expedited review of an observational study (Multi-region; MEC/09/49/EXP). Participants were initially contacted by telephone and given a brief description of the project. Those who were interested were sent a letter of invitation and an information sheet (see **Error! Reference source not found.** and REF _Ref360892083 \r \h * MERGEFORMAT Appendix B, respectively). Participants were given at least one week to decide whether to participate and those who agreed arranged to attend one of the focus group meetings. Written

informed consent was obtained from the participants at the start of each focus group session (see Appendix C).

Four groups were held in total, three at Massey University and one (at participants' request) at participants' place of work. Between four and seven participants attended each session. Although 5-8 participants is often the ideal, when participants have considerable expertise or a lot to say on a subject, smaller groups are appropriate (Krueger & Casey, 2009). The decision regarding how many focus groups were held was based on how much new information was being generated from each session.

Each focus group began with a welcome, an introduction and a reiteration of the study and its purpose and goals, followed by a brief explanation of the group ground rules. At this point, participants were invited to introduce themselves and describe briefly their experience working with children in the target age group. The focus group discussion was started with a transition question (Krueger & Casey, 2009) designed to get participants thinking about the purpose of emotion regulation. The remainder of each session was spent discussing four topic areas intentionally broad so as to avoid hindering the expression of each professional's frame of reference:

- Strategies children use when they are trying to deal with their emotions or emotional responses.
- The kinds of emotion regulation strategies considered to be beneficial or useful.
- The strategies considered to be counterproductive or unhelpful.
- The signs that a child is having trouble regulating his/her emotions.

Data Collection, Transcription and Analysis

The sessions were audio recorded on a digital voice recorder and notes were taken by a research assistant throughout the session. Recordings were transferred to a password protected personal computer and deleted from the voice recorder within

24 hours of the end of each session. The discussions were then transcribed individually after each focus group. As the purpose of these focus groups was highly targeted, an abridged transcript format was used and all material irrelevant to the specific aim of this study was excluded (Krueger & Casey, 2009). Discourse which provoked particular conflict or consensus was noted alongside the transcription.

Transcripts were then examined closely and an iterative coding process was used to identify and extract specific words or phrases which participants used to describe examples of emotion regulation (O'Brien, 1993). These descriptors were compiled together with the items extracted from the instruments discussed above, placed in a table and, using a constant comparative analytic framework, compared and sub-grouped in terms of their conceptual similarity (Krueger & Casey, 2009). The 226 groups formed by this process formed the basis for the first draft of the emotion regulation item list. At this point, the transcripts were revisited to re-evaluate the area of regulatory behaviour participants were discussing at the site of each item. This served both to verify the appropriateness of each item's fit into the group, and to help ascertain a suitable item descriptor for the group. Following the process outlined by Parkinson and Totterdell (1999), the groups were then subcategorised using an iterative approach until no additional meaningful distinctions between the strategies could be found. This allowed for the deletion of synonymous or almost identical items.

To provide some clarity, a simplified example regarding the creation of one item is provided. The word "yells" was noted as a new item theme during Focus Group One. Subsequently, "yells at someone" was described during Focus Group Two and "yells and screams" was noted during Focus Group Three. Additionally, "yells" is part of an item in the Emotional and Behavior Problem Scale (McCarney & Arthaud, 2001). Next, "screams a lot" was taken from the CBCL (Achenbach & Rescorla, 2001). Additionally, "I feel like screaming" is an item from the Beck Youth Inventories, Second Edition (J. S. Beck et al., 2005). Although each of these items is slightly different, through the iterative process, these items and concepts were merged into the item "Yells or screams".

Important to the purpose of this research was to adequately describe each item using a plain natural language not loaded with implicit connotations and not founded within a particular discipline. For instance, the item descriptor which captures the concept of *dissociates* was particularly important in the groups and in the literature, however this is a loaded and technical term which may not be easily understood by lay people. Two processes were used to facilitate this: a reflective, interpretive process during item construction and supplementary critique of the items with regards to the research goals. Consequently, once the draft inventory was generated, it was reviewed in collaboration with two well-versed senior clinical psychologists and experienced researchers who had not participated in the focus groups. After this, the item draft was sent to the original focus group participants for review and feedback. Participants who wished to provide feedback were asked to assess the inventory in terms of phrasing and terminology, overlapping items, content domain coverage and item accuracy. This feedback led to several alterations to item wording to better (or more simply) reflect or explain the concept the item intended to capture. For example, the item "stores up things unnecessarily" became "Hoards, e.g. food or clothing". The item "appears vigilant or watchful" became "Appears on edge or watchful". Several items were considered to be overly similar or repeated, so were merged. For example, the items "runs off to another location" and "temporarily removes self or walks away" became "Temporarily leaves a situation".

The groups were then arranged into more general thematic categories which captured the underlying action occurring from the emotion regulation behaviour. The purpose of this thematic step was to provide a rough structure to the schedule to enable comparisons of similar items for overlap and assessment of the schedule for areas of poor domain coverage. These themes were purely to help develop a preliminary understanding and way to present the items. The category labels and contents were reviewed by two independent senior clinical psychologists before being finalised. They were not used in any further analysis.

Results

The focus group data and instrument review produced an inventory consisting of 103 items, which can be found in Table 1. The items were represented by eight clear, yet somewhat intersecting themes:

1) Acting Out. Items in this theme are typified by disinhibited behaviour – more specifically, how emotions are displayed or vented. For example, yells or screams.
2) Acting In. The items in this category tend toward inward-focusing or restrained emotion-related behaviour. For example, feels sick (e.g. sore tummy or headache).
3) Approaching Others. Items in this theme are characterised by behaviours that involve making some kind of contact with other people. For example, asks for a hug or a cuddle.
4) Avoiding Others. Conversely, these items involve actions which work to prevent or evade emotional contact with others. E.g. avoids eye-contact.
5) Escaping & Distracting. The items in this category describe actions which provide some form of mental escape from emotional experience. For example, watches television.
6) Displaced Control. These items emphasise ways emotions are regulated by means of finding control in other areas of life. For example, cleans.
7) Self-soothing. This theme is characterised by actions a child does for him- or herself which help mitigate emotional experiences. For example, uses a comfort item (such as a teddy or blanket).
8) Impulsive. The items in this category are not characterised by a specific behaviour, however they were regularly raised in the focus groups and literature. Items here reveal the level of structure and organisation to a child's emotion regulation. For example, moods become changeable.

Table 1

103 Item Inventory of Children's Emotion Regulation Strategies Organised by Domain Themes

Domain Themes with Strategy Items
Acting out
4. Yells or screams
29. Throws things
35. Threatens others
63. Swears
2. Says mean things to other people (e.g. calls them names)
5. Runs around energetically
100. Physically hurts smaller children or animals
14. Makes more noise than required
39. Lies or distorts the truth
71. Hits, kicks or pushes other people
76. Gets into fights
81. Frowns or scowls
59. Damages things
85. Breaks rules
103. Blames others
83. Acts staunch or tough
65. Argues
Acting in
38. Talks about feeling weird, like in a dream
42. Seems unaware of surroundings
82. Stares blankly
95. Picks at skin or other parts of the body
19. Maintains expressionless face
55. Intentionally hurts self
88. Freezes
66. Cries or sobs
9. Becomes quiet
96. Blames self
23. Avoids showing certain emotions
80. Appears indifferent
Approaching others
20. Uses humour (e.g. makes a joke)
49. Talks with others about experiences
58. Talks about feelings with others
79. Stays close to a known adult
90. Tries to sleep with main caregiver
87. Smiles
97. Shows off
78. Shows affection to familiar people (e.g. hugs, kisses, cuddles)
102. Shows affection to unfamiliar people (e.g. hugs, kisses or cuddles)
54. Plays with peers
25. Looks to an adult for guidance
46. Laughs or giggles
89. Boasts or skites

Domain Themes with Strategy Items
48. Asks for verbal reassurance
60. Asks for a hug or cuddle
52. Asks for help or advice
Avoiding others
43. Temporarily leaves a situation
67. Plays or spends time alone
92. Shuts/covers eyes or ears
74. Hides
45. Avoids conversation
33. Avoids physical contact
28. Avoids reminders of emotional experiences (e.g. situations or people)
16. Avoids talk about emotional events
13. Avoids trying new things
41. Avoids eye-contact
37. Avoids people
Escaping & distracting
11. Writes about experiences (e.g. in a diary)
15. Watches television
24. Consumes drugs, alcohol or tobacco
18. Reads a book
57. Spends time with animals
94. Sings or waiata
27. Pretends to be somewhere else
32. Pretends to be someone or something else
62. Plays video games
30. Listens to music
50. Gets involved in a favourite activity (e.g. a hobby)
77. Feels sick (e.g. sore tummy or headache)
91. Finds a distraction
44. Does artwork
53. Daydreams
6. Behaves more like a younger child
51. Talks to or plays with an imaginary friend
Displaced control
26. Tidies or organises
70. Sticks to the rules
99. Sticks to structure or routine
68. Hoards (e.g. food or clothing)
12. Repeats certain routines
40. Preoccupied or fixated on something
34. Limits food intake
17. Eager to please others
36. Does what s/he is told
31. Dominates conversation
22. Dominates play with others
72. Cleans
75. Checks things over and over
69. Appears on edge or watchful
98. Does exercise
Self-soothing
7. Gives her/himself a pep talk

Domain Themes with Strategy Items
56. Talks to god or uses prayer/karakia
61. Takes deep breaths
64. Sucks thumb
47. Plays with or touches own private parts
8. Eats
73 Chews fingernails
84. Uses a comfort item (e.g. a blanket/teddy)
86. Repetitively plays out same stories during play
Impulsive
101. Goes from one activity to another without finishing
21. Reacts without stopping to think
10. Gets restless
93. Exaggerates reaction
3. Emotional responses out of context (e.g. smiles when in trouble)
1. Moods become changeable

Discussion

Study One was successfully able to develop an inventory of 103 items describing observable children's emotion regulation strategies. This was completed using research measures, clinical measures and focus group data. The items appear to capture broad range of emotion regulation strategies, yet also provide a level of detail that could enable a thorough picture of a child's strategy use if required.

The research involved an exploration of the relevant literature, an examination of available clinical and research instruments and an inspection of data from research focus groups. The study generated hundreds of descriptors illustrating units of behaviour which 6-12 year old children deploy to regulate their emotions. These descriptors were collated and condensed into a schedule containing 103 items, which were then phrased using neutral, action-oriented and non-technical language. These items were captured in eight clear themes, including: *Acting Out, Acting In, Approaching Others, Avoiding Others, Escaping & Distracting, Displaced Control, Self-Soothing* and *Impulsive*.

Important to the broad utility of the inventory is the multidisciplinary nature of the reference sources and the focus group participants. Add to that the benefits of a relatively uncomplicated and neutral language and the inventory becomes a tool

which can be used across disciplines and demographics. For instance, the items can be equally understood and applied by parents, foster carers, social workers, teachers, psychologists and any other person with a robust knowledge of the individual child.

Links to the Literature

As well as reflecting the model and theoretical approach used for this research, the items also appear to resonate with prominent themes apparent in the emotion regulation literature. As mentioned in Chapter One, James Gross' process model of emotion regulation outlines five families of strategies, including situation selection, situation modification, attentional deployment, cognitive change and response modulation. Gross' model focuses strongly on the stage of the emotion-generative process in which the emotion regulation occurs (Gross & Thompson, 2007). These timing factors are captured in the item inventory. For instance, a number of the items reflect behaviours a child might engage in to select or modify their situation (e.g. "Avoids trying new things" and "Temporarily leaves a situation"). Attentional deployment (and situation modification) is captured in items such as "Finds a distraction" and cognitive change could occur when the child "Gives self a pep-talk", although, due to the internal nature of cognitive activities, change can only be inferred from the current items. Finally, response modulation could be the driving force behind items such as "Maintains an expressionless face" (again, inference is required here). Timing, however, is not the defining factor of these items, as many items can be deployed at several different stages in the emotion-generative process. Nonetheless, timing could be considered a key factor in the effective use of each item.

Another approach that has been used to organise emotion regulation strategies is to place them on a continuum from automatic emotion regulation to deliberate emotion regulation (Gross & Thompson, 2007; Mauss et al., 2007). The strategies detailed here are not so easily dispersed along a continuum from automatic to deliberate, namely because each item's location on the continuum depends entirely

on the individual using it and the situation in which it is applied. Factors which are significant include how well-practiced a particular strategy is, how early in the child's life the strategy developed and what socio-cultural norms are in play (Mauss et al., 2007). Thus, a child who "Avoids showing certain emotions" may have developed this strategy very early in life as a result of social, cultural and/or familial norms and the child's temperament. Consequently, this child may deploy the strategy unconsciously or automatically (even though it may have originally been a voluntary and controlled strategy). Conversely, the same strategy may be deployed deliberately and consciously by a different child raised in a different environment and in a different emotion-eliciting context.

The items developed here are also demonstrative of strategy families found in the coping literature. Lazarus's (1993) broad banners of problem-focused and emotion-focused coping can be contrasted with the items generated by this study. Problem-focused coping works to manage the stressor, whereas emotion-focused coping acts to manage the emotional arousal associated with the stressor. The nature of the model and theory under which this research is working means these items tend to reflect emotion-focused strategies, rather than problem-focused strategies. In other words, when used for the purpose of regulating emotion, these behaviours act in some way to affect emotions, rather than the specific event causing the emotions. Except, of course, when the source of the stress is an emotion (rather than an external stimulus); in this situation acting to change the stressor becomes emotion regulation. In fact, Lazarus and Folkman refer to *emotion-focused coping* as "emotion regulation" in their seminal book outlining the model (1984, p. 44).

Although problem-focused strategies are likely to affect the emotion, it is impractical, if not impossible to comprehensively list strategies which could reflect every possible problem-focused coping scenario. Consequently, problem-focused coping has not been specifically captured by the items in this inventory. It could be argued that even a strategy that initially seems problem-focused, such as "Asks for

help or advice" or "Temporarily leaves a situation", is ultimately emotion-focused when the strategy goal is to affect the emotion rather than the stressor itself.

Links with the Goal Directed Model of Emotion Regulation

Each of the strategy items identified in this study reflects a concept that describes an emotion regulating activity. Most of the behaviours described in the inventory can be seen across many situations and are deployed for diverse reasons, depending on the unique context and goals. Some might argue that many of these strategies are *not* necessarily emotion regulation. For example, a child "Eats" because she finds it calms her worries, or she may eat because her stomach is growling. Another child "Gets into fights" because it reduces feelings of anxiety and incompetence, or he might fight because he is defending himself against an attacker. However, I would argue that, according to the goal-directed model of emotion regulation *all* behaviour, including cognitive behaviour, is emotion regulating.

It is possible to argue that behaviours designed to manage physiological needs are *not* emotion regulating. I disagree with this position. The need to go to the toilet, to eat, to drink or to sleep (for example) does not cause us to do so (otherwise, I would be asleep at my keyboard every afternoon at 2pm). It is the emotion associated with the need. For instance, the sensation of hunger does not cause a person to eat. People eat when they are not hungry and they don't eat when they are hungry. It is regulating the associated emotion which causes the actual eating behaviour (perhaps down-regulating annoyance at being distracted by hunger or up-regulating contentment associated with a desired food or a full stomach). However, these sensations (of hunger or satiety, for example) do create a context in which the likelihood of a particular behaviour (eating, for example) changes.

Consequently, each of the behaviours identified from this research is a process by which a child can monitor, influence and modulate emotions or by which he can evaluate or demonstrate emotions to achieve personal objectives in relation to

individual emotional contexts. One might ask "Why these behaviours then? Why these behaviours over any other behaviour a child might engage in?" These items were derived from sources focused on emotion regulation: emotion regulation measures, focus groups targeting emotion regulating behaviours and emotion regulation literature. Yet, they also provide a sample of children's behaviour. In many ways, these items constitute a condensed sample of the many behaviours children enact to regulate emotion.

The items identified in this investigation are not founded on or fundamentally reliant on the type of emotion-eliciting event or stimuli. These strategies exist independent to the emotion-eliciting event. More specifically, each event (and its resulting emotion) is completely unique and completely reliant on the individual characteristics and goal of the person experiencing the emotion. Using this approach means the structure of these items diverges from the structure of items found in many of the measures reviewed for this study. Many emotion regulation items found in other measures are structured based on their orientation towards a specific emotion or a specific context. Examples of these include: *Responds angrily to limit-setting by adults* (context-specific; ERC, D. Cicchetti, personal communication, 2009); *I have angry outbursts* (emotion-specific; ERICA, MacDermott et al., 2010); *When I felt happy, I could control or change how happy I felt* (emotion-specific; How I Feel, Walden, Harris, & Catron, 2003); *Becomes anxious when the environment is unpredictable or poorly structured* (context-specific; CCQ, Block & Block, 1980).

In addition to neutrality in terms of specific emotion or context, the items are versatile in terms of their ability affect an emotion. Depending on the individual characteristics and the emotion(s) elicited, most of the items can be used to up-regulate, down-regulate or maintain the duration or intensity of an emotion. For example, the items "Eats" or "Sucks Thumb" could be applied to soothing (or down-regulating) anxiety, up-regulating or perhaps maintaining contentment. The item "Cries or sobs" could be applied to venting (thus down-regulating) an undesired emotion, or eliciting comfort (thus up-regulating) a desired emotion. Additionally,

this item may help maintain certain emotions (such as grief). "Limits food intake" may help reduce certain emotions (such as anxiety), but may also elicit (or up-regulate) other emotions, such as confidence or pride. When viewed in this way, each of these items can be used to manage emotions in diverse and complex ways. Rather than focusing unduly on undesirable emotions, the items can be deployed to down-regulate, up-regulate and manage both desirable and undesirable emotions.

The model and approach used for this study posits that completely different events may trigger the use of similar strategies in two different children. It is the frequency, intensity and/or duration of the emotion regulating behaviour that is of interest, as a specific pattern of regulating will underlie any unhelpful deployment (including over, under and/or inappropriate use) of particular strategies (or groups of strategies). One may not predict the emotion elicited or the strategies deployed based solely on and understanding of the emotion-eliciting event. Such a prediction requires knowledge and understanding of the individual characteristics of the child, the specific context and the relevant goal to which the emotion relates.

This research sought to create a domain of emotion regulation strategies which could be assessed or reported by an informant other than the child. Consequently, the items are framed in a manner that is as observable as possible. This means that strategies which could be considered more cognitive, experiential or even physiological in their nature and deployment can only be inferred from a child's behaviours. However, the nature of the emotion regulation component of the model outlined earlier indicates the overlapping characteristics of these components. More specifically, a strategy may be predominantly cognitive (for example, cognitive reappraisal), but may also have elements which reflect experiential, physiological, interpersonal and/or behavioural regulation. For example, the item "Becomes quiet" may reflect several different internally deployed emotion regulation strategies, or it may be a more pure behavioural strategy designed to allow the child to avoid detection.

The goal-directed model of emotion regulation delineates five key and intersecting elements of emotion regulation strategies: *behavioural*, *cognitive*, *experiential*, *physiological*, and *interpersonal* strategies. The approach taken in this research does not presume which elements are involved when one of the identified strategies is deployed. As the items were designed to be action-oriented, *behavioural* elements of strategies can generally be ascertained. For example, one can observe the behaviour of a child who "Damages things" or who "Does artwork". As many of the behavioural items involve social or interpersonal connection, *interpersonal* elements of emotion regulation can also be pinpointed to a certain degree. However, the range of elements involved in many of the items are not so clear, especially when considering the *experiential*, *cognitive* or *physiological* elements of a strategy, or when considering observable actions which might be undertaken unobtrusively (for instance, nail biting that only occurs when the child is alone or reading books by torchlight after bedtime). Without a direct measure of the internal processes of a child, emotion regulation may, in many cases, only be inferred (for instance, by observing a child's nails bitten to the quick, or seeing the fatigued child and the pile of books next to the bed).

Limitations

As with any research, limitations can be identified with this study and the resultant items. One of the main limitations addresses the ability to generalise these items across different populations. These items were developed specifically with New Zealand children in mind. Although all of the instruments examined for this study were developed outside New Zealand, a large portion of the items were generated through the focus groups, conducted with New Zealand-based practitioners who work with New Zealand children. Additionally, the focus group data acted as a type of filter, helping to amend any items not appropriate to children in this country. Thus, significant caution must be taken when considering these items in relation to a child who has not been raised in New Zealand. More specifically, children from outside New Zealand may draw upon different strategies to those outlined here.

Additionally, the action-orientation and behavioural focus used to frame the items likely means that certain cognitive behaviours of emotion regulation have been under-sampled or omitted. This is an unfortunate by-product of attempting to create a domain of items which are intended for other-report applications. Attempts have been made to capture behaviours that reflect cognitive processes; however, it is important to acknowledge here that cognitive emotion regulation behaviours are not overtly sampled.

One final concern is that, by using the focus group data to guide item selection, possible omissions in the item domain may have appeared. Item areas which were not strongly represented in the instrument examination or focus groups were omitted to allow room for more prominent item families. Additionally, there is no way of knowing from this study alone if the item domain has been adequately captured. Fortunately, there is a method which can map domain coverage, as well as organise the items in terms of their conceptual similarity and dissimilarity. This method is used in Study Two, where any gaps in item coverage will be uncovered. If such gaps are revealed, they can be rectified with supporting research.

Summary

This study has generated a list of 103 observable emotion regulation strategies used by children aged 6-12 years. Because of the observable or behavioural framing of the items, they have the future potential to be used in other-report applications, such as clinical or research measures. The approach employed to generate these items used the definition of emotion regulation provided in Chapter One and the goal-directed model of emotion regulation outlined in Chapter Two as the founding framework. This framework specifies the importance of the emotion, the context and the goal situation in which the strategy is deployed to the functionality and appropriateness of the strategy. Thus, the strategies needed to be framed and outlined separately from specific emotions, contexts and goals. Ensuring these items were not contingent on the emotion, context and goals of the individual allows them to potentially pertain to any potential emotion, context or

goal situation. Now that an appropriate list of strategies has been created, Study Two will explore the conceptual relationships between the items and examine how well this list of items covers the possible domain of observable emotion regulation strategies.

CHAPTER FOUR

STUDY TWO: MEASURE DEVELOPMENT

"Give me a child and I'll shape him into anything."

B. F. Skinner (1904-1990)

INTRODUCTION

Study One generated a list of 103 observable children's emotion regulation strategies. Study Two aims to examine and validate domain coverage and uncover inter-item relationships from these items. As described previously, this study aims to examine: how the items relate to each other and show which items are similar and which are different; the emotion regulation concepts that connect these items; if there are any items that overlap which could be removed; and whether there any gaps in the coverage of the item domain.

Research has previously identified items describing children's emotion regulation strategies and these have subsequently been used in various assessment measures. Factor analysis investigations have revealed a two-factor solution to the structure of the ERC (Shields & Cicchetti, 1997) and a five factor solution for the Behavioral and Emotional Rating Scale (BERS; M. H. Epstein, 2000). However, factor structure solutions do not always provide the most comprehensive examination of the item structure. For example, during the initial development of the BERS, some of the originally developed items were removed as they did not load on to one of the five factors identified. These items may have in fact been important to the construct the researcher was attempting to capture, but as they were not consistent with the prescribed structure, they were removed. Furthermore, although five factors were identified, this approach tells us only a little about how those factors are related to each other. Thus, it is necessary to undertake a careful consideration of the type of information needed from a structural analysis before going any further.

Factor analysis is one way of investigating the structural make-up of a set of items. A separate, but related approach is known as multidimensional scaling. There are a number of similarities between these two approaches, and the models can be linked methodologically and logically (Davison & Skay, 1991; MacCallum, 1974). Factor analysis refers to a collection of data analysis procedures applied to multivariate data sets where structure is derived through reducing the data down to key underlying characteristics or factors (Schiffman, Reynolds, & Young, 1981). To undertake a factor analytic approach for the purposes of this study, participants would be required to assess each of these items in relation to specific, previously constructed attributes. More specifically, factor analysis is able to demonstrate relationships between items, but is focused on empirical relationships in the form of correlations between any two items when they are applied to a given attribute. Given the exploratory focus here, it is more important to understand the conceptual relationships between items first, before examining the empirical relationships.

Multidimensional scaling (MDS) is an approach which enables an examination of the relationship between items when the underlying structure and characteristics are not known. The resultant analyses generate a geometric representation of participants' implicit judgments on the (dis)similarity of stimuli (Schiffman et al., 1981). This approach is useful when limited information or research is available to provide a basis for generating attributes (as is the case here). Additionally, MDS can reveal how the attributes relate to each other. As this is a direct approach to collecting judgment data, MDS is less exposed to experimenter contamination or bias (Schiffman et al., 1981). Participants are able to assess and categorise the items in relation to each other without having to articulate their categories. Finally, when there are a large number of items, MDS is able to examine conceptual relationships with fewer participants and data sets compared with other approaches.

A further benefit of the MDS approach is how the end product is presented (Jaworska & Chupetlovska-Anastasova, 2009). Multidimensional scaling produces a graphic representation of the item relationships, whereby an observer can see the conceptual distance between items represented graphically. In other words, the proximity of two items (represented as points) in the geometric space reflects the items' similarity of meaning (Bimler & Kirkland, 2001). This can facilitate understanding of the structure by expert and lay audiences alike and provides a more readily interpretable solution (Schiffman et al., 1981). The MDS solution tends to be easier than factor analytic solutions to rotate to align axes with key conceptual attributes. Finally, unlike factor analytic methods, which discard items that fail to load on the identified factors, all items contribute to the MDS map and its dimensions. Using this approach, items can be removed or culled when overlapping or conceptually analogous items are identified. Consequently, MDS analyses circumvent the removal of potentially valuable item constructs due to low factor loading.

There are several of ways an inventory such as this could be organised, for instance, on a continuum of beneficial to detrimental/helpful to unhelpful, or in terms of clinical or non-clinical behaviours. However these organisational forms provide a positive-negative valence to the items which contradicts the theoretical position from which the research operates. Strategies are neither innately helpful nor unhelpful. In one situation a strategy may be very helpful; however, in another situation the same strategy may be quite detrimental. It is the inflexible or inappropriate deployment of strategies across contexts which may cause them to be considered clinically significant. Thus, the helpful/unhelpful continuum is not useful here (unless it emerges as a conceptual dimension). More specifically, for the purposes of this research, it was important to know how each item related to each of the other items. For example, the items "Gets into fights" and "Hits, kicks or pushes other people" appear to be fairly similar in theme, but what if, for instance, they are conceptually identical? What would this mean for the item list? On a more inclusive scale, a key issue involves how the items hang together. More specifically, what characteristics or attributes connect the items?

Objective Mapping

Objectively mapping the items according to informant judgments of their similarity is a necessary step before being able to use the inventory to examine children's emotion regulation. The results from this step enable an objective view of the subjective data that will come from applying the inventory to real cases. The map acts as a lens with which we can view the individual details of the case and separate out the inevitable noise associated with ranking data (Bimler & Kirkland, 2001). Similarity data can be obtained a number of ways, including direct ratings, triadic sorts or pair-wise comparisons. However, the number of items in the inventory created in Study One impedes the use of these methods (Jaworska & Chupetlovska-Anastasova, 2009; Kirkland et al., 2004).

Similarity estimates are obtained here by asking participants to sort the items into unforced and self-defined groups based on how they naturally go together. More specifically, participants are asked about their perceptions of item similarity based on their perceptions of the "face value" of the item. The Grouping, Opposites, Partitioning and Adding sorting procedure (GOPA; an extension of the traditional G/A sort explained in Bimler & Kirkland, 2007 and; Kirkland et al., 2004) will be used to achieve this. This sorting procedure is designed to elicit conceptual judgments about semantic similarities and dissimilarities between items and groups of items without requiring participants to articulate or describe their grouping criteria. The multiple sorts of a GOPA task helps weaken artificial clustering of items due to transitivity of the data – i.e. item *i* is similar to item *j* and item *k*, therefore item *j* and *k* are likely to cluster simply by their mutual association with *i* (Bimler & Kirkland, 1998).

Average similarity estimates can be obtained by examining how often each item is grouped with each other item. Dissimilarity between two items is represented by the number of distinct groups two items are grouped into (aggregated over informants and sorting steps). Two similar items will, on average, be placed together in a pile more often than two items that are dissimilar. These data are then

used to build a proximity matrix, which then acts as the input for an MDS analysis (Kruskal & Wish, 1978).

Distances in a MDS solution reflect dissimilarities between items. The quantitative, ordinal level data generated by sorting tasks requires non-metric MDS, which does not assume the relationship between distances and dissimilarities is linear. Thus, a classic MDS algorithm employing Euclidean distances to model the dissimilarities will be applied to the individual proximity matrices. Here, the distance between two points (*i* and *j*) is defined as:

$$d_{ij} = \sqrt{\sum (x_{ia} - x_{ja})^2}$$

Where x_i and x_j specify the coordinate of items *i* and *j* on dimension *a* (Jaworska & Chupetlovska-Anastasova, 2009; Young, 1985).

Previous research has demonstrated that different participant groups often draw upon the same implicit model when considering psychological domains (for example, see (Kirkland et al., 2004; Pechtel, 2008). Nonetheless, to assess whether the structure of these items are subject to bias and other disturbances, the items were applied to two different sample groups: people with no specific training or expertise in emotional concepts and people with training in the area. To ensure a sufficiently stable inter-item structure for both maps, each sample should consist of at least 30 informants (Bimler & Kirkland, 1998). Phase One involves lay-participants and Phase Two consists of a replica of Phase One, but is drawn from a population of people with a postgraduate qualification in psychology. If the underlying conceptual structure of the items is consistent across these two populations, the two separate maps should correlate strongly. If they are sufficiently similar, they will be merged.

METHOD

Participants

Phase One

Participants for Phase One of study two were 30 individuals without a postgraduate qualification in psychology (16 male, $Mean_{age}$ = 32.4 years, SD_{age} = 12.9, $Range_{age}$ = 21-67). The participants had a diverse range of occupations and the sample included (but was not limited to) students, police officers, soldiers, teachers, nurses and engineers. Participants were a lay sample of convenience and were recruited by means of snowball sampling.

Phase Two

Participants for Phase Two of this study were 29 individuals with a postgraduate qualification in psychology and one with a postgraduate qualification in human development (25 female, M_{age} = 35 years, SD_{age} = 9.5, $Range_{age}$ = 23-61). Although the male to female ratio of this sample is considerably asymmetrical, this gender balance is fairly representative of the population of psychologists in New Zealand (New Zealand Health Information Service, 2006). The participants included clinical psychologists and students with a postgraduate psychology degree (i.e. an Honours or Masters degree in psychology). Participants were drawn as a sample of convenience and were recruited through known associates and snowball sampling.

Materials

Each item was printed in black ink in Times New Roman font (size 13pt) on the centre of a coloured card measuring 35 x 75mm. A randomly allocated item number was printed on the top right corner of the card. Participants were also provided with a pen, a pencil and a recording sheet (see Appendix D) on which they could fill out their sort results.

Procedure

This project was judged to be low risk and was peer-reviewed in lieu of being sent to the Massey University Human Ethics Committee. The study was conducted in accordance with the Massey University Code of Ethical Conduct for research, teaching and evaluations involving human participants. Participants volunteered to take part in the study and written and informed consent was obtained prior to each of the sessions (see Appendix E, Appendix F and Appendix G for a copy of the consent forms and information sheets). The participants were also advised of their rights to refuse to answer any question or to withdraw at any stage. Assurances were given regarding the confidentiality of participant data.

The sorting tasks were undertaken either individually or in groups of up to four. Each participant session was held in a convenient location and included participants' homes, place of work, my home or on-site at Massey University. The participants were given the 103 item deck (items can be found in Table 1), a consent form, a recording sheet, a pencil and a pen. Next, the instructions for the sorting tasks were read aloud (see Appendix H) and, pending any questions, asked to begin.

Participants organised the 103 item statements into groups based on their judgment of each item's "face value". The four step GOPA sorting task was completed as follows (Bimler & Kirkland, 2007). Participants were first asked to group the items based on their similarity to each other, in other words, how the items naturally fall together. They were then asked to identify the most opposite groups of items, divide the groups into smaller heterogeneous subgroups and finally, identify the most similar groups of items. Participants recorded their sorting results on the recording sheet (see Appendix D) as they went. The full GOPA procedure took, on average, approximately one hour.

Data collection & analysis

The data from each of the recording sheets were entered by hand onto a personal computer using Data Organiser (Graybill, 2009). This bespoke software application is designed to enable faster and simpler data entry and to perform consistency checks to ensure item numbers had not been entered twice or that false item numbers had not been entered.

Once all the sorting results had been entered the results for the two different phases were analysed separately. Thus, the results from each phase were separately collapsed across the samples' participants and placed into a proximity matrix based on how often each item was grouped with every other item across the four steps. This provided estimates of mean similarity between each item. Results were then inserted into a Euclidean space with dimensionality determined by the goodness-of-fit (Kruskal & Wish, 1978).

Goodness-of-fit, or stress function, reveals how closely the distances within a map match a given data set in a given dimensional solution. The stress function is an iterative process which looks for successive approximations to the map until the stress is minimised (Jaworska & Chupetlovska-Anastasova, 2009). The aim here is to maximise the goodness-of-fit, while minimising the number of dimensions to enable a valid and accurate, yet coherent configuration. The stress function is presented as a number which shows how perfectly the data fit the configuration for a given level of dimensionality. The number generated falls between 0 and 1, with 0 being a nominally "perfect" fit. An implementation of the Kruskal algorithm was applied to the data via a bespoke multidimensional scaling application, with the formula presented as:

$$S_1 = \sqrt{\frac{\sum_{ij}\left(d_{ij} - d^*_{ij}\right)^2}{\sum_{ij} {d_{ij}}^2}}$$

This determines the goodness-of-fit between the distances d_{ij} and disparities d_{ij}^{*} (the proximities after positive monotone transformation has converted it to disparities) in the spatial map (Schiffman et al., 1981).

An elbow test plotting the stress by dimension was also prepared to assist in finding the appropriate level of dimensionality for this data (Bimler & Kirkland, 2007).

RESULTS

Phase One

The stress indices for the two dimensional (0.245), three-dimensional (0.178), four-dimensional (0.132) and five dimensional (0.104) solutions indicated a three-dimensional solution as the best fit for the lay data. Increasing dimensions from two-dimensions to three-dimensions caused a larger drop in stress compared to further increases in dimensions. The debate here revolves around whether to decrease the map stress by increasing the dimensions (yet doing so would cause a slight increase in the accuracy of the map; i.e. the improvement would be minor), or leaving the map a three dimensional structure, and consequently enhancing the map's clarity, interpretability and ease of use (Kruskal & Wish, 1978). Considering the decrease in stress would be minimal by increasing the dimensionality, the best option was to promote the three-dimensional solution. The stress index for the three dimensional model (0.178) was well below the ceiling of 0.305 (for a 100-object model) indicated by Sturrock and Rocha (2000), providing further validity to the structural arrangement of the items.

Phase Two

The stress indices for the two dimensional (0.235), three-dimensional (0.163), four-dimensional (0.122) and five dimensional (0.098) solutions indicated a three-dimensional solution as the best fit for the expert data. Increasing the dimensions

had a similar effect as for Phase One, and, for the same reasons as previously mentioned, a three dimensional solution was retained.

Phase One and Two Compared

Several analyses were used to assess how well the lay and expert solutions matched. First a Pearson's *r* cophenetic correlation was used to compare the distances between corresponding pairs of items on each map. This revealed a strong correlation between the maps ($r = 0.79$), which indicates that the lay and expert sorters were accessing the same underlying mental structure during the sorting. Further to this, canonical correlations of the two maps indicated that all three axes (dimensions) were strongly and significantly correlated ($R_c = 0.97$; $R_2 = 0.81$; $R_3 = 0.71$; $p < 0.005$). The Procrustes distance, which measures the residual distances between corresponding items after one map is superimposed on the other and rotated to maximise the overlap between them, was low ($g_1 = 0.076$). Due to the strong resemblance between these two solutions, a collapsed solution was warranted.

The stress indices for the two dimensional (0.223), three-dimensional (0.159), four-dimensional (0.117) and five dimensional (0.091) solutions indicated a three-dimensional solution as the best fit for the expert and lay data combined. Increasing the dimensions had a similar effect as for both Phase One and Phase Two, and, for the same reasons as mentioned above, a three dimensional solution was retained.

On rotating the final combined model an interesting feature was observed. As mentioned above, one of the benefits of the MDS approach to analysing psychological domains is that if there is a gap in the item coverage of the domain, it should reveal itself as a space in the map with no points. In the case of the combined map, a mid-sized space was apparent in one corner of the map, indicating a possible gap in the inventory content. Two options presented themselves at this point: continue with the research with the gap or; review the

map and attempt to develop further items that can be used to fill the gap. Auxiliary research was undertaken in an attempt to close the gap.

Auxiliary Study

A secondary examination was undertaken of the map which was designed to uncover the conceptual area missing from the geometric map. Here items directly adjacent to and opposite to the empty space in the map were carefully examined and abstract areas that could fit in the space were developed. These areas revolved around concepts such as non-compliance, chaos, uncleanliness and messiness. At this point, the focus group and instrument item units were re-examined for items that might reflect these concepts. No item units from the focus groups appeared relevant to the concepts of chaos, uncleanliness or messiness, however, there were several reflecting non-compliance. The concepts of chaos, uncleanliness and messiness were represented, but only minimally in four of the instruments examined. Using the same process as in Study One, these item units were used to construct nine new items aimed specifically at accessing or tapping into the apparently missing conceptual areas. Although, the disobedience construct appeared adequately captured with items such as “Breaks rules”, “Says mean things to other people e.g. calls them names” and “Lies or distorts the truth”, two new items were included to focus on disobedience. The new items can be seen in Appendix I.

Kirkland and colleagues state that “[o]nce an inter-item structure has been established and dimensionalised it is then quite independent of support from all items” (2004, p. 717). In other words, new items do not need to be re-sorted with the full set of original items; instead they can be triangulated from neighbouring items used as anchors. Thus, rather than undertake another full long sort of the 112 items, it is possible to use a subset of the original items, plus the newly developed items in a new, short sort.

Method

A sub-deck of 26 items was extracted from the original 103-item deck and merged with the nine new items. As it was important to ensure each of the clusters was captured in the sub-deck, strongly representative items were drawn from each cluster. Items opposite the gap and neighbouring the gap were also included. This created a new deck of 35 items (the items for which can be seen in Appendix I).

Participants

Participants for the auxiliary study were a mixture of 30 lay and expert individuals (18 females; M_{age} = 33.7 years, SD_{age} = 9.79, $Range_{age}$ = 23-58). Participants included, but were not limited to: students, teachers, soldiers, psychologists and clerical staff. Participants were drawn from a sample of convenience and selected through snowball sampling.

Materials

Each item was printed in black ink in Times New Roman 13pt font on the centre of a coloured card measuring 35 x 75mm. A new set of randomly generated numbers was allocated to the 35 items. As before, this was printed on the top right corner of the card. Participants were also provided with a pen, a pencil and a new recording sheet (see Appendix J) on which to fill out their sort results.

Procedure

Participants volunteered to take part in this study and written and informed consent was obtained prior to undertaking the sort task (see Appendix K and Appendix L for information sheet and consent form). Participants were advised of their rights and assurances were given regarding the confidentiality of participant data.

The sorting tasks were completed individually or in pairs or threes. Each session was held in a convenient location and included participants' homes, place of work, my home or on-site at Massey University. The same GOPA procedure as described in the lay and expert sorts was followed with the following changes:

- Participants were asked to sort cards into between 5-10 different groups with no more than 8 items per group.
- During the [O] and [A] phases, space was provided on the recording sheet for two (rather than three) pairings, although participants could make as many pairings as they wished.
- The full GOPA procedure for this shorter sort took, on average, 20 minutes.

Data Collection & Analysis

As above, the data from each of the recording sheets was entered by hand onto a personal computer using the Data Organiser programme (Graybill, 2009). A second proximity matrix was created and analysed in conjunction with the first, using the "repeated measures" mode of MDS. The first matrix was extended for this purpose with nine new columns and nine new rows (containing "missing data" entries), with the new matrix contained missing data entries for the 87 columns and rows which corresponded to the items not taking part in the auxiliary study. This allows the new items to be inserted into the space without impacting on the points in the original map. Additionally, a stress analysis was conducted on the new map using the same formula as above.

Results

The stress indices for the two dimensional (0.242), three-dimensional (0.165), four-dimensional (0.123) and five dimensional (0.096) solutions indicated a three-dimensional solution as the best fit for the new combined data. Increasing the dimensions had a similar effect as for Phase One and Two, and, for the same reasons as previously mentioned, a three dimensional solution was retained.

With regards to the gap in the map, five of the new items fitted well into the centre of the hole. The other four new items fell around the edges of the hole. In particular,

(and somewhat expectedly) the two items reflecting the concept of noncompliance/disobedience were drawn into an existing cluster of items reflecting a similar concept.

Map Interpretation

Map interpretation consists primarily of identifying and labelling important groupings or orderings of items (Davison & Skay, 1991). This process seeks out meaningful features within the map. A meaningful grouping is a set of items which cluster together in a particular area of the map, whereas a meaningful ordering refers to the arrangement of items along a particular attribute (or dimension). Thus, in interpreting an MDS solution one identifies and labels clusters and dimensions. The labelling of such features in the space can be quite subjective. Nonetheless, it is also highly transparent due to the nature of the presentation of the data. The approach used in this study for interpreting the data was simple inspection of the map (Davison, 1983). This inspection identifies key items along the dimension and then isolates the dimensional concept. This process was undertaken in consultation with eight of the original expert participants and the resultant dimensions are conveyed as follows:

1) Dependence dimension: This dimension reflects the child's level of dependence-related behaviour. The strategies at the positive end of this dimension involve highly independent behaviours. The most significant item at this end is "Gets into fights". Conversely, strategies at the negative end of this pole reflect highly dependent behaviours. "Uses a comfort item" can be found at the extreme end of this dimension.[4]
2) Connection dimension: This dimension reflects strategies the child uses which somehow forge a connection with others or the target emotion. At the positive end of this pole, strategies capture behaviours which

[4] Please note, this dimension could also be considered a dimension of "attachment"; forging bonds between the child and another. The positive end reflects behaviours that are antithetical to forging attachments and the negative end reflects bonding-related behaviours. This dimension was labelled "dependence" to prevent enmeshment with attachment theory (although dependency does feature in attachment theory). Some might argue that this dimension reflects an internalising/externalising dimension. This is discussed later in the chapter.

disconnect from others. Dissociation and avoidance items are found at this end of this dimension. The key item at the far end of this pole is "Avoids reminders of emotional experiences". At the opposite end of dimension two, strategies work towards connecting with other people. The most significant item on this dimension is "Eager to please others".

3) Attending dimension: This dimension's key attribute is how the child appears to be using attention and focus to regulate emotions. At the positive pole, the child is focusing inward and attending deeply to the emotion, as can be seen in the vital item "Picks at skin or other parts of the body". Conversely, the opposite end of this dimension captures strategies reflecting outward-focused, emotion regulating behaviours. The archetypal item at this end is "Does artwork". Items along this dimension could be considered a form of distraction from the emotion.

A list can be seen in Appendix M outlining the key items of importance for each dimension.

It is also important to identify the abstract concepts linking the clusters together. Clusters are composed of items which are positioned close to one another in the geometric space. Both the map and a hierarchical cluster analysis dendrogram using a mean linkage algorithm created from the proximity data (see Appendix N) were used to visually identify items with conceptually similar meanings. A dendrogram is a diagrammatic tree obtained through hierarchical clustering where the items are arranged like leaves on a tree, with the branches representing the distance between items (Kirkland et al., 2004). The dendrogram demonstrates how the clusters were combined at each step of the procedure until all items form one single cluster (Hair, Black, Babin, & Anderson, 2010). The degree of similarities between items is represented by the height of the branch connection with other items.

The choice of which clusters to use and which level of structure to focus on is a subjective one. Thus, the clusters were additionally reviewed by two senior clinical

psychologists. Twenty one clusters were identified in the full 112-item map. These included *a) Affection Seeking, b) Attacking, c) Avoidance, d) Cheerful, e) Compliance, f) Damaging, g) Disobedient, h) Disorganised, i) Displaced Control, j) Dissociation, k) Distraction, l) Dominate, m) Excess/Dramatic, n) Help Seeking, o) Make-believe, p) Self Soothe, q) Somatic, r) Unkempt, s) Verbalise Emotion, t) Solo Play,* and *u) Active*.

Item Reduction and Construction of the ChERI (Children's Emotion Regulation Inventory)

The final step in preparing the inventory for future research is to reduce the number of items to a more manageable level. Future research aims to use the inventory to examine key domains and patterns of emotion regulation strategies children use. Kirkland and colleagues demonstrated that removing items to create a more manageable deck of items has minimal impact on the resulting hotspot profiles (2004). They also note that only 40 items are required to sketch a satisfactory profile. Having less than 40 items may increase convenience for the user or sorter, but makes it difficult to obtain a robust and clear picture of an individual (D. Bimler, personal communication, May 16, 2011). More specifically, the number of items needed depends on how much information is required from the responses.

This allows for considerable culling of items. There are several advantages to reducing the inventory size. Firstly, in subsequent studies it will reduce the sorting time for participants. Secondly, in relation to this, if the inventory has clinical applications, a smaller deck of items will reduce administration time in clinical practice. Thirdly, culling the items reduces item overlap, hence providing a cleaner map and more efficient response opportunities (Kirkland et al., 2004).

Culling the items was a three-phased, post-hoc process based on the procedures described by Kirkland et al. (2004). Items that are positioned adjacent in the MDS map and closely linked in the dendrogram are likely to be capturing a very similar concept. Consequently, items were removed using a visual inspection of the map

where, by and large, the more general or higher order item was kept. A similar visual inspection was undertaken using the hierarchical cluster analysis dendrogram in Appendix N. Again, when two items were very similar, the higher order item was generally kept. Finally, a random selection of five items was removed, bringing the final item count to 85. The final 85-item ChERI can be seen in Table 2. Although the final number could have been reduced further, it may be important to retain at least enough to construct a double deck of items. More specifically, if the inventory is ever intended to assess change in a child's emotion regulation, it may be necessary to provide a second deck or alternate form to prevent test-retest bias. Thus, by retaining 85 items, it will be possible to construct two forty-plus item inventory decks if required.

As the culling was done after map construction, item removal does not affect the general structure or layout of the map, just the number of items in it. The recovery of a dimensional structure for the conceptual space is not overly sensitive regarding the specific items, as long as the underlying dimensions are sampled adequately. However, cluster structure is sensitive. For example, two clusters can join together if another item connects the gap between them. Additionally, some of the smaller clusters cease to be clusters as they no longer contain enough items (D. Bimler, personal communication, May 16, 2011). The culling process reduced the cluster count to 17, removing the *Damaging, Help-Seeking, Make-Believe,* and *Unkempt* clusters. Although these cease to be clusters, the concepts are still captured in the remaining items. Figure 2 shows the layout of all 17 clusters across the 3 dimensions. A list of the items which make up each cluster can be found in Appendix O. As can be seen in the item lists, although the subjectively interpreted and constructed cluster and dimensional descriptors can be disputed (Shepard, 1982), each concept is transparent. Please note, not all items are part of a cluster.

Table 2

Final 85-Item Children's Emotion Inventory (ChERI)

ChERI Items
1. Moods become changeable.
2. Says mean things to other people e.g. calls them names.
3. Emotional responses out of context e.g. smiles when in trouble.
4. Yells or screams.
5. Runs around energetically.
6. Behaves more like a younger child.
7. Eats.
8. Becomes quiet.
9. Gets restless.
10. Writes about experiences e.g. in a diary.
11. Repeats certain routines.
12. Avoids trying new things.
13. Makes more noise than required.
14. Eager to please others.
15. Reads a book.
16. Maintains an expressionless face.
17. Uses humour e.g. makes a joke.
18. Reacts without stopping to think.
19. Dominates play with others.
20. Consumes drugs, alcohol or tobacco.
21. Pretends to be somewhere else.
22. Avoids reminders of emotional experiences e.g. situations or people.
23. Avoids physical contact.
24. Limits food intake.
25. Does what s/he is told.
26. Avoids people.
27. Talks about feeling weird, like in a dream.
28. Lies or distorts the truth.
29. Preoccupied or fixated on something.
30. Seems unaware of surroundings.
31. Temporarily leaves a situation.
32. Does artwork.
33. Laughs or giggles.
34. Plays with or touches own private parts.
35. Asks for verbal reassurance.
36. Talks with others about experiences.
37. Gets involved in a favourite activity e.g. a hobby.
38. Talks to or plays with an imaginary friend.
39. Asks for help or advice.
40. Daydreams.
41. Plays with peers.

ChERI Items	
42.	Intentionally hurts self.
43.	Talks to god or uses prayer/karakia.
44.	Spends time with animals.
45.	Damages things.
46.	Asks for a hug or a cuddle.
47.	Takes deep breaths.
48.	Plays video games.
49.	Swears.
50.	Sucks thumb.
51.	Cries or sobs.
52.	Plays or spends time alone.
53.	Hoards e.g. food or clothing.
54.	Appears on edge or watchful.
55.	Cleans.
56.	Chews fingernails.
57.	Hides.
58.	Gets into fights.
59.	Feels sick e.g. sore tummy or headache.
60.	Shows affection to familiar people e.g. hugs, kisses or cuddles.
61.	Frowns or scowls.
62.	Stares blankly.
63.	Acts staunch or tough.
64.	Uses a comfort item e.g. a blanket/teddy.
65.	Breaks rules.
66.	Repetitively plays out same stories during play.
67.	Freezes.
68.	Tries to sleep with main caregiver.
69.	Exaggerates reaction.
70.	Picks at skin or other parts of the body.
71.	Blames self.
72.	Shows off.
73.	Does exercise.
74.	Sticks to structure or routine.
75.	Physically hurts smaller children or animals.
76.	Goes from one activity to another without finishing.
77.	Shows affection to unfamiliar people e.g. hugs, kisses or cuddles.
78.	Blames others.
79.	Becomes untidy or messy.
80.	Appearance becomes scruffy.
81.	Tasks and activities become disorganised.
82.	Appears relaxed or laidback.
83.	Has problems completing tasks.
84.	Avoids following rules.
85.	Behaviours become unpredictable.

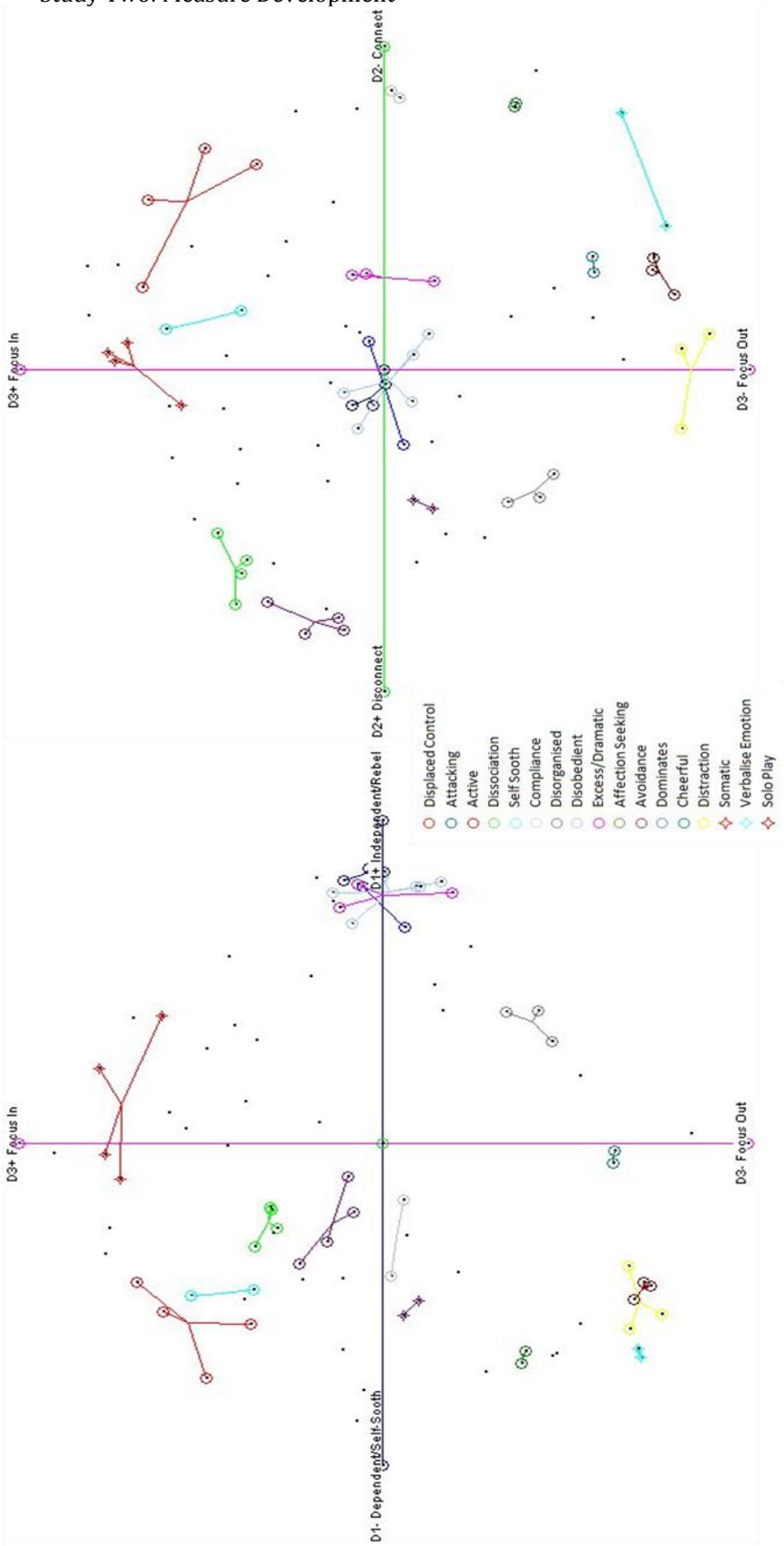

Figure 2. **Multidimensional map of dimensions and clusters observed in the final culled ChERI map. The left hand axes exhibit the *Dependence* dimension on the horizontal plane and the *Attending* dimension on the vertical plane. Rotate the map horizontally by 90º to obtain the right hand view, which exhibits the *Connection* dimension on the horizontal plane and the *Attending* dimension on the vertical plane.**

Discussion

The present study aimed to examine and validate domain coverage and uncover inter-item relationships of the children's emotion regulation strategies outlined in Study One. Study Two identified how the items relate to each other in terms of conceptual similarity, revealed the concepts that connect and describe the items, flagged items that overlapped or were extraneous and could be removed and finally, revealed a gap in domain coverage and then facilitated additional research to fill said gap. The inventory items from Study One were sorted in terms of similarity by experts and lay people and comparisons revealed both these sample groups to be accessing the same underlying structure when considering the items. Results revealed a three-dimensional, 17 cluster final solution to the culled 85 item ChERI.

Links with Other Measures

Previous factor analytic research has revealed a range of different structures to the emotion regulation strategies they have examined. For example, the ERC was found to have a two factor solution consisting of an *emotion regulation* factor, and a *lability/negativity* factor. Principle component analysis of the Emotion Expression Scale for Children (Penza-Clyve & Zeman, 2002) also revealed a two factor solution consisting of *poor [emotional] awareness* and *expressive reluctance*. In terms of coping approaches, Ayers, Sandier, West and Roosa (1996) revealed a four factor solution to the Children's Coping Strategies Checklist (Program for Prevention Research, 2000), including; active, distraction, avoidant and support seeking factors. The authors determined that this four factor model was a better fit to the coping data than dimensional models such as the problem- versus emotion-focused dimension proposed by Lazarus (1993).

Elements of each of the factors mentioned above can be seen in the items, clusters and/or dimensions. The lability/negativity factor described by Cicchetti (D. Cicchetti, personal communication, 2009) is reflected in the *Excess/Dramatic*

cluster and in items such as "Moods become changeable". The emotion regulation factor can be seen in the *Verbalise Emotion* cluster and in items such as "Maintains an expressionless face". The expressive reluctance factor identified by Penza-Clyve and Zeman (2002) can be seen in specific items across the map. Importantly, these items did not cluster together specifically to form an important dimension (factor) or cluster. Such items include "Maintains an expressionless face" in the dissociation cluster, or perhaps "Becomes quiet" situated nearby. It could be argued that the inverse of this factor may be reflected in the *Verbalise Emotion* cluster. With regards to the poor awareness concept described in Penza-Clyve and Zeman (2002), this is somewhat more difficult to establish with an inventory designed around behaviours reported by others. The Emotion Expression Scale for Children is a self-report scale, enabling access to a child's self-described experiences. This is one of the benefits of such a measure over other-report approaches. Nonetheless, awareness is a highly internal process, and the premises behind the current research do not presuppose an informant's ability to read the child's mind. Consequently items which capture cognitive processes of a child were avoided. Furthermore, the Emotion Expression Scale for Children is a scale examining emotional *expressivity* – a relevant, but distinct concept from emotion regulation.

Three of the four factors described in Ayers et al.'s (1996) solution of coping resemble very closely three of the clusters found in this study, namely; active, distraction, and avoidance. Of note, if one were to place these four factors on a two dimensional axes within the ChERI map, the *avoidance* (avoidant) cluster and items reflecting the support seeking factor ("Asks for help or advice" and "Asks for verbal reassurance") are positioned almost opposite to each other. The *Distraction* and *Active* clusters, however, are directly adjacent in the map, suggesting these two strategy clusters are conceptually (and possibly tactically) close. Perhaps this is indicative of how activities, such as doing artwork, can be used as a distraction tool when regulating emotions.

The results here indicate that the map has adequately captured the coping results described by Ayers et al.'s (1996), and the emotion regulation factors described by

Cicchetti (D. Cicchetti, personal communication, 2009) and Penza-Clyve and Zeman (2002). Furthermore, important items generally cluster together as they might have been expected to. However, the ways the clusters and dimensions relate to each other within the map were somewhat unanticipated, such as the adjacently positioned *Distraction* and *Active* clusters. The pattern of relationships between items at times appears to transcend the different theories behind the other measures, rather than directly align with any specific perspective. This pattern may be explained by the way in which the items were generated and the way in which the map was created. More specifically, a broad selection of items was captured from a wide range of theoretical perspectives and disciplines. Additionally, the wording of the items were framed and written in a manner that was not contingent on emotions, goals or contexts. Finally, the perceptual sort and MDS analysis means the resulting relationships between items and item groupings were not based on any pre-defined theory or expectation. These factors combined mean the items have fallen where they naturally (perceptually and conceptually) fit, rather than being fitted into place by a theory.

The multidimensional map generated in these analyses reveals not only the clusters and dimensions, but also provides a clear illustration of how these clusters and dimensions are linked. Importantly, these dimensions and clusters were created without scoring items on previously derived attributes or variables. The dimensions and clusters were created based on groupings and partitions present within each individual participants conceptualisation of item relationships. No a priori variables or attributes were constructed against which the participants could build or consider their groups. In spite of this, the map may even provide a tentative structural layout to the Children's Coping Strategies Checklist, as each of the four factors discussed in the checklist are clearly present in the ChERI map.

Parallels can be seen between the ChERI items and clusters and the emotion regulation strategies examined in research looking at the emotion regulation of children slightly younger than the current age range (4.5-5.5 years old) (Dollar & Stifter, 2012). Dollar and Stifter theoretically derived four key umbrella strategies

of interest (coded behaviours in relation to a frustration task), including distraction, goal-directed behaviour, self-soothing and social support seeking. The ChERI *Affection Seeking* cluster and items such as "Asks for verbal reassurance" or "Asks for help or advice" align closely with the social support seeking strategy. The ChERI *Avoidance*, *Distraction* and *Active* clusters marry well with the distraction concept. The *Self-Soothe* cluster aligns directly with Dollar and Stifter's self-soothing behaviours. The only area not directly captured by the ChERI items and clusters is that of goal-directed behaviour. This strategy is analogous to problem-solving coping concepts from the coping literature. Specific goal-contingent items were excluded from the development of ChERI items as such items contradict the model and definition which form a framework for this research.

Links with Theory

The map generated by the lay and expert participant groups does not provide evidence to corroborate or contradict any specific theoretical perspective. Instead, it appears to provide a bridge between several perspectives. Often children's problem behaviour is divided into externalising and internalising behaviours (Calkins & Howse, 2004; Lahey et al., 2008). Externalising behaviours are characterised by acting out and include disruptive, destructive and aggressive behaviours (Calkins & Howse, 2004). Behaviours on the internalising dimension include social withdrawal, anxiety, depression and psychosomatic complaints (Achenbach & Edelbrock, 1978; Eisenberg et al., 2001). Historically, these two dimensions are described as though they form two bipolar ends of the same concept (for example, see Achenbach & Edelbrock, 1978; Weintraub, 1973). However, more recently, they have been depicted as two separate dimensions (Lahey et al., 2008).

In the context of this research, when conceptualised as emotion regulating strategies, internalising and externalising behaviours are not found along a single dimension. Highly externalising behaviours can be seen situated at the extreme independent end on a dimension of dependence. Highly dependent and self-

soothing emotion regulating behaviours are found at the opposite end of this dimension. In accord with a multidimensional approach, strategies reflecting the internalising dimension are not linked with the externalising behaviours, but can be found primarily at the extreme disconnect end on a dimension of connection. At the opposite end of this dimension, emotion regulating strategies involve behaviours that attempt to forge connection with others. The map generated by this research suggests the psychosomatic problem behaviours are not necessarily conceptualised as a component of the internalising dimension. Importantly, these emotion regulating strategies can be found at the extreme focus-in end of the attending dimension. These results suggest that, although behaviours involving avoidance and withdrawal make up an important part of the internalising dimension of emotion regulation, somatic behaviours are conceptually separate to both the internalising and externalising patterns.

Attention deployment is a key aspect of emotion regulation. Developmental psychologists describe the development of attention skills as a vital developmental task (Rothbart & Sheese, 2007). Attention shifting and deployment is primarily achieved by the caregiver in the very early weeks of life. However, after a few short months, infants gain considerable control over their ability to wilfully shift attention, and attention control gradually moves from being externally imposed to internally regulated in early childhood. Thus, the control of what to attend to and how to attend to it are some of the earliest emotion regulation strategies acquired. The importance of attention is reflected in the dimensional map generated from this research. The concept of attention is depicted in the third dimension *Attending.* At one end of this dimension, strategies involve an outward focus, and these include engaging in distracting activities, either alone or with others. At the other end of this dimension, strategies appear to reflect an inwards focus, which could imply the child is attending closely to the felt emotion. Importantly, the strategies at this inwards focus appear very somatic in nature (for example, “Chews fingernails”, “Limits food intake”), however, there are also non-somatic strategies close to the extreme end of this dimension (for example “Blames self”, “Cries or sobs”). Despite the behaviour-based application of this research, these behavioural

processes appear to reflect the cognitive strategies used to regulate emotion. Consequently, the behaviours a child has developed around how s/he attends to emotion has been highlighted here as an important dimension within the ChERI.

Limitations and Implications

A close inspection of the dendrogram in Appendix N reveals certain semantic and linguistic connections between some items in the clusters. The clearest example of this is the *Avoidance* cluster where many of the cluster items begin with the word "Avoids...". In many cases it is difficult to separate the semantic meaning of an item from the applied behavioural strategy. However, there are clear examples where similar phrasing of items has not resulted in close proximity of items. For instance, although the two items beginning with "Shows affection to..." are both situated toward the connect end of the *Connection* dimension, they are positioned on different sides of both the A*ttending* and *Dependence* dimensions. Additionally, there are several items starting with the word "Talks...", yet these are positioned in quite different areas of the map. Consequently, the semantic similarities between items do not necessarily dictate their location on the map. Although concerns could be voiced that the organisation of the items has been influenced by semantics, it can be argued that in most cases the semantics and the associated behaviours are inextricably linked.

Although this research was able to provide an explicit structure to the underlying relationships between the items created in Study One, some caution is required in the application of this structure. As is true of the first study, the majority of participants were New Zealanders and all were living and working (or studying) in New Zealand. Consequently, the relationships can be considered specific to the New Zealand context. Previous research has demonstrated that similar latent structures can be held across cultures and even languages (Kirkland et al., 2004), however, additional research examining different cultural structures should be conducted before applying these results elsewhere.

There are innumerable possible applications for the ChERI in future research. The structure outlined in this study reveals the underlying conceptual meaning of the relationship between the items in the inventory. This conceptual meaning was consistent across two distinct participant samples, demonstrating the shared and robust nature of the underlying concept. Consequently, the map itself can be used to assess, compare or investigate the relationships between items, clusters and factors in other related measures. This series of research studies will use the ChERI to examine key domains and patterns of emotion regulation strategies used by typical children. However, more specific population groups could and should be explored. The ChERI has the potential to expand researchers and practitioners understanding of the patterns of children's emotion regulations and, with this knowledge, can adapt or create suitable interventions to address problematic emotion regulation.

CHAPTER FIVE

STUDY THREE: EMOTION REGULATION DOMAINS AND SUMMARY PROFILES

INTRODUCTION

Having identified, organised and classified items of children's emotion regulation in the previous two studies, the focus of Study Three is to generate key domains and individual profiles of emotion regulation. These domains and profiles can then be examined to discover whether there are particular patterns of emotion regulation use across children. This is where subjective profiling is applied.

Due to the truly exploratory nature of examining ChERI scores, domains and patterns, producing hypotheses regarding the specific hotspot domains and profile types that will emerge would be poorly founded. However, there are two key objectives that drive Study Three. First, the results of the ChERI MoSS sort and analysis will identify and enable the interpretation of important domains (hotspots) of children's emotion regulation. Second, profile scores on these hotspot domains will enable the identification, interpretation and characterisation of specific patterns of children's emotion regulation. For the purposes of this research, an informant with intimate knowledge of the child was deemed most appropriate. Ideally this measure could be used in the future most commonly in clinical contexts. As parents and primary caregivers will most likely be the adult informant involved in future clinical situations, the most valuable insight and data for this research will be obtained from parents or caregivers.

Subjective Profiling

Creating the structural map in Study Two was a crucial, yet supplementary step in the process of examining patterns of children's emotion regulation. The map provides a stable and objective lens through which the subjective individual child

data can be viewed (Kirkland, Bimler, Drawneek, McKim, & Schlölmerich, 2000). The map structure is objective, meaning it is not built on or derived from some previously constructed theory of emotion regulation. Although the items which make up the map can be theoretically derived, the structure found within the map is not. When the items are applied to a group of children, the map can act as an atheoretical framework for understanding the patterns which emerge.

The subjective child data are acquired when a value is ascribed to each item in relation to a child. This can be achieved through asking informants to either rank or rate the child on each item. Rating data can be acquired quickly with a simple Likert scale-style questionnaire, where an informant rates how applicable each item is to the target child. However, data acquired in this manner are somewhat unreliable for two reasons. Firstly, it can give rise to lack of care in completing the rating task. Informants do not tend to put as much thought into their ratings as they might through other methods (Kirkland et al., 2000). Secondly, the biases inherent in rater data can lead an informant to rate each item variably throughout the rating task (For a review, see Saal, Downey, & Lahey, 1980).

One way to mitigate these difficulties is to ask the informants to rank the items using a sorting task. Of course, it would be extremely time consuming for informants (not to mention impossible to find willing participants) to ask them to place all 85 items in rank order (Russell & Gray, 1994). Therefore, this research employs an adaptation of Method of Successive Sorts (MoSS; Kirkland et al., 2004) to obtain ranking data. This method is still relatively time consuming for the participants (or informants in clinical practice), and can be resource intensive for investigators if done by hand. Nonetheless, this investment of time and resources can benefit the quality of the research output.

The "Hotspot" Model

Once the subjective ranking data are obtained, profiles of emotion regulation strategy use can be derived using Kirkland et al.'s *hotspot* model (2000). Any ranking data are given to containing noise. However, the previously derived map

can be used to reduce that noise (Bimler & Kirkland, 2001). If two items are near each other on the GOPA map, then it stands to reason that they would generally receive similar ranking scores during a MoSS sort (i.e. the behaviours are likely to coexist). In this procedure, any major discrepancy between the item distance on the map and the ranking scores is treated as noise. The way this is achieved is by "smearing out" each item's rank value by averaging it with other items near it on the map. When a sufficiently large *N* of ranking data responses is applied to the GOPA map, the result is a highlighting of the most prominent or important areas on the map. In other words, the item neighbourhoods that have high between-case variation, yet high within-case similarity across neighbouring items will be highlighted. These highlighted neighbourhoods are the hotspots. Areas which do not vary greatly between participants will not be highlighted and are considered less relevant.

Hotspot locations are determined using a gradient descent algorithm to shift the locations in order to find optimal agreement between the ranking data and the spotlight model (Kirkland et al., 2004). The hotspots make up the best approximation for all ranking responses and, once fixed, the same hotspot location on the MDS map is used to summarise all data (Pechtel, 2008).

Each hotspot domain contains items that have a shared understanding (as demonstrated by objective mapping) and have a shared likelihood of occurring together (as demonstrated with subjective profiling; Pechtel, 2008). In relation to this research, hotspot domains represent groups of items endorsed collectively by the informants as emotion regulating behaviours most frequently and intensely seen in their children. They represent a summary of the patterns of important emotion regulating behaviours found in children.

Kirkland and colleagues outline a number of practical applications for a hotspot model once one has been obtained (2000). Once hotspot domains of emotion regulation strategies are identified, each individual child's scores on hotspot domain items (a weighted average based on each item's distance from the centre of

the hotspot) can be calculated, generating an idiosyncratic profile of emotion regulation for every child. These profiles can then be clustered into groups of similar emotion regulation profiles, each representing a potential pattern or style of emotion regulation. Additionally, the profile of emotion regulation a child generates can be compared or contrasted with earlier profiles if, for instance, one wanted to monitor the child's development over time. Finally, once the individual profiles are constructed and patterns derived, they can then be related to theoretical concepts of emotion regulation.

The applications described above make it possible for this research to identify key domains and patterns of emotion regulation used by children aged six to 12 years. Additionally, it then becomes possible to look at relationships between profile patterns of emotion regulation and variables which might play an important role in the development and/or use of emotion regulation strategies. Such variables include age, gender, ethnicity and parenting styles. These applications also make it possible for this research to plant the seeds for developing a method for assessing and monitoring children's emotion regulation in clinical settings. Furthermore, these models then make it possible for this research and any profiles generated to be applied to developing or adapting interventions targeted at optimising a child's emotion regulation strategy use. Study Three examines the domains and patterns of children's emotion regulation using the ChERI item list.

Method

Participants

A total of 151 parents and primary caregivers (144 female, 95.4%) completed participation in this study. Parents had a mean age of 39.5 years, ranging from 25-54. Two participants (1.3%) identified themselves as primary caregiver, rather than biological parent. 72.8% of the participants identified their primary ethnicity as Pākehā/NZ European/New Zealander (*n*=110), with Māori comprising 9.3%,

Chinese 1.3% (*n*=2), Samoan and Indian .7% each (*n*=1) and 15.2% classified as "Other" (*n*=23) and identified as Taiwanese, Filipino, British, Australian, French, Zimbabwean, Russian, Yugoslavian and South African. One hundred and eight parents (71.5%) did not practice a religion, while 25 (16.6%) were Christian, 13 (8.6%) were Catholic, one (.7%) was Buddhist, four (3%) practiced another form of religion. Household size ranged from two to eight members, with a mean size of 4.16 members. Fifty one participants (34%) reported a household income of more than $100,000, while 20 (13.2%) reported an income of less than $50,000. Eighty participants (53%) reported an annual household income between $50,000 and $100,000.

Participants' target children (79 female, 52.3%) had a mean age of 8.35 years, and ranged from 6 to 12 years. Seventy three percent of the children (*n*=115) were identified by their parents as Pākehā/NZ European/New Zealander, with Māori comprising 14.6% (*n*=22), Samoan, Cook Island Māori and Chinese .7% each (*n*=1) and 7.3% classified as "Other" (*n*=11) and were identified as Taiwanese, Filipino, British, Australian, French, Russian and South African. The child's school decile rating ranged from one to 10, with a mean of 7.19. One child did not have a decile rating due to homeschooling, so the total mean was used in place of the missing data.

Participants were recruited via a media release initially posted on the Massey University Research News website. The research story was run as articles in several electronic and paper media sources across New Zealand. These included parenting websites and e-letters (such as the Tots to Teens e-letter and the Essential Mums website) and paper media (such as the Manawatū Standard, Kiwi Parent Magazine and various community newspapers, such as the Whangarei Leader etc). The story was also aired on Chinese Television's evening news. Additionally, a number of interested individuals shared the research article through email and social media, garnering a snowball effect.

Volunteers contacted the researcher for further information (expressions of interest = 212), at which point they were sent two information sheets (an adult version and a child friendly version for parents and caregivers who wished to tell their child about the research). Copies of the information sheets can be found in Appendix P and Appendix Q. Informed consent was provided in writing for participants who completed the tasks by hand and by electronically checking a box for those who participated online. Participants who decided to not continue with the study at this point dropped out for varying reasons, including: not meeting inclusion criteria (e.g. child age outside of the study range; living outside New Zealand), child asking the parent not to participate; and parent changing their mind after reading the information sheet.

One hundred and sixty eight individuals commenced data collection by providing demographic details over the phone. Of these, 17 did not complete data collection before collection closed (all participants were given at least one week to complete the tasks). There were no significant differences in participant demographics with respect to those who completed the tasks and those who did not, with one exception: sex of the reporting parent. Four percent of participants who completed all tasks were male (7/151), whereas 23.5% of participants who did not complete the remaining tasks were male (4/17). Due to small expected cell counts, Fisher's exact test was applied, which indicated the proportion of males who did not complete was significantly higher than those who did complete (p = .015). Due to the likely negligible effect of such a small proportion of participants on the wider results, the analyses continued including the seven male participants.

Materials

Participants who completed the tasks by hand were sent a research pack, which included: a consent form (see Appendix R); an instruction sheet (see Appendix S); a stack of 85 coloured cards measuring 62 x 30mm each with a ChERI item typed on it in black ink; nine labelled zip lock bags in which to place the sorted cards; an A3-

sized layout sheet to aid the sorting process (see Appendix T); and a return postage paid envelope.

Participants who completed the tasks online required access to a laptop or personal computer and an internet connection.

Procedure

Approval for this study was provided by the Massey University Human Ethics Committee, Southern B (MUHEC: 10/70). Once participants had read the information sheets, they were contacted to see if they were still interested in participating. Those who remained interested completed a five minute demographics questionnaire by phone and were given the option of completing the research tasks by hand (by post) or online. A total of 168 participants commenced data collection by completing the demographics questionnaire. A total of 151 went on to complete the remaining tasks before data collection closed.

Participants who chose to complete the tasks online were emailed a link to the card sorting website, instructions to get started and the four digit identification code that they needed to enter when they reached the site. The online card sort included the same instructions and consent form as for the postal option, but tailored for the online process (for example, including "drag and drop" instructions). Screen grabs of the online process can be found in Appendix U. The card sort took approximately 20-25 minutes to complete for both methods. Including the time spent collecting demographics data, the tasks took each participant a total of approximately 35 minutes.

The Method of Successive Sorts (MoSS)

The current variation of MoSS sorting was first outlined by Kirkland and colleagues when attempting to understand styles of child attachment using the Attachment Q-Set (2000). The items are sorted into a previously established number of piles through a series of steps, each step gaining a more fine-grained appreciation of the

ranked position of each item. This study employed a three step hierarchical ranking task in which the parents arranged the ChERI items based on how strongly each item is displayed by their child. The first step was to divide the items into two piles, "more noticeable" and "less noticeable" with a "not sure" pile in which cards could be placed for later consideration. The parent then completed this procedure twice more, each time doubling the number of piles by subdividing each pile in terms of applicability to the child. The final product was a set of eight ranked item piles of varying sizes. The "not sure" pile was then reviewed by the parent and any items then could be shifted into the ranked piles. Any leftover items in the "not sure" pile were mathematically treated as missing data. This procedure generate nine piles per participant of items ranked from 1-9 (with number five being the "not sure" pile) in terms of applicability to the target child.

Data Collection and Analysis

All data were coded and entered into a Microsoft Excel spreadsheet. Data collected by phone and by the hand-sorting method were entered by hand. Data collected online was converted from the website's original format and entered into the Microsoft Excel spreadsheet. The entire dataset was exported to IBM SPSS Statistics Version 20 (SPSS 20) for analysis.

Subjective Profiling

First, a multidimensional proximity map of the parental report data was generated. A matrix of Pearson's correlations between each pair of items (more specifically, the correlation between corresponding values across all MoSS sets) was created using SPSS. This was treated as a proximity matrix, MDS applied and the resulting three dimensional solutions compared against the GOPA map created in Study Two. The maps were compared using canonical correlation, cophenetic correlation and Generalised Procrustes Analysis (GPA). An overlap in dimensions and points between the similarity (objective) data and the parental report (subjective) data as determined by the correlational analyses, as well as minimal residual distance or

mismatch between items on the two maps as determined by the GPA, would support the use of the objective map as a framework for the subjective data.

The multidimensional scaling analysis then integrated the MoSS ranking data into the similarity map to identify item clusters that are most relevant for parents in rating children's emotion regulation. As noted above, these clusters are centred upon psychological hotspots within the MDS solution. Items geometrically close receive more similar values than distances in the map would predict. Hotspots identify and highlight the most frequently co-occurring emotion regulation strategies. These hotspots are found in areas on the map where an individual's responses are consistent across geometrically close items, but which also demonstrate variability across participants. A fundamental meaning for each hotspot domain was abstracted from the ChERI items with the highest weighting for that hotspot: more specifically, the items with the greatest proximity in the Euclidean space.

Hotspot locations were found and optimised using a gradient-descent algorithm to find the optimal agreement between the subjective ranking data and the rankings predicted by the hotspot model (Bimler & Kirkland, 2001). More specifically, hotspots are moved along each of the dimensions and when the partial derivative of the badness-of-fit can no longer be further reduced the optimal locations have been found.

Ranking scores for each item on the ChERI were then presented in summary form as scores across the hotspots by inserting each MoSS-determined ranking response for each item into a table of weights that reflect the relative distances to each item from the hotspots. Scores a_{qf} for the hotspot values were obtained by normalising the v_{qi} (v = values in the MoSS data; q = the individual case; i = the item) to a zero mean and a constant variance for all q, then taking a weight sum by applying:

$$a_{qf} = \sum_i v_{qi} s_{if} / \sum_i s_{if}$$

Where the weighting parameters, $s_{if} = \exp(-\omega\, d_{if})$, and d_{if} is the Euclidean distance between x_i and y_f. x_i is the location in the MDS solution of the point representing item i and y_f is the location representing hotspot f. ω is the empirically defined parameter describing how quickly the importance or weighting drops with increasing distance from a neighbourhood. The denominator compensates for irregular scattering of points and allows for incomplete data.

Principal component analysis (PCA) was used to provide a comparison point for the MDS hotspot solution by determining a preliminary number of components within the ChERI data. Principal component analysis is an exploratory technique normally used to describe relationships between variables in a set of data and can then be used to inform measure development (Meyers, Gamst, & Guarino, 2013). Similarity between the number of factors predicted by the PCA and the number of hotspots predicted by the MDS algorithm goes some way towards establishing the validity of the MDS hotspot solution. Consequently, the number of hotspots to expect was predicted and validated by comparing the hotspot solution generated using MDS against the PCA-derived component solution determined from the same ChERI MoSS data.

Finally, hierarchical and non-hierarchical clustering methods were used to explore patterns or clusters of similar scores across the 151 profiles of hotspot scores. An agglomerative hierarchical clustering method was applied to identify the optimal number of clusters for a meaningful solution. The proximity measure used was squared Euclidean distance and employed Ward's (1963) method as the clustering algorithm. Examination of the coefficient size in the agglomeration schedule, the form of the Ward's dendrogram and Q-factor analysis were all used to enable the identification of the optimal clustering solution.

The agglomeration schedule demonstrates the order in which the clusters were aggregated. The schedule also provides a coefficient, which is the value of the distance between the clusters being merged. The smaller the number, the more homogenous the clusters are. In determining the optimal number of clusters to

represent the data, cluster formation should cease when the coefficient between two steps becomes comparatively large (Norusis, 2010).

As described in earlier, the Ward's dendrogram is a diagrammatic tree obtained through hierarchical clustering. The dendrogram demonstrates how the clusters were combined at each step of the procedure until all items form one single cluster (Hair et al., 2010). The degree of similarities between items is represented by the height of the branch connection with other items. The dendrogram demonstrates the form of the clusters and how closely they are linked and is used by visual inspection to help determine optimal cluster solution.

Unlike standard factor analysis, which generally examines similarity between items or variables, Q-factor analysis examines patterns of scores across cases or participants (Coxon, 1982). The ChERI MoSS data used for a PCA is literally turned sideways, with the same analysis computed to enable a Q-factor analysis. The output is a set of factors representing patterns of scores across cases and provides a baseline for establishing an optimal cluster solution.

Cluster stability was assessed using several methods: application of different hierarchical clustering algorithms (between-group and within-group average linkage), randomly splitting the sample, randomising the case order entry into the Ward's algorithm, assessing for multicollinearity between hotspot scores and removal of outliers (Hair et al., 2010).

The Ward's algorithm sequentially aggregates clusters in an agglomerative method based on comparisons between each cluster's sum of squares. However, once an element (or case) has been merged into a cluster, the Ward's algorithm does not remove it again, even if subsequent agglomerations cause a different cluster to become a more optimal match. Thus, the Ward's method is used to establish the number of clusters, profile the cluster centres and identify any significant outliers, but a non-hierarchical method is required to ensure cases have been assigned to the best or closest cluster (Hair et al., 2010). Thus, the hierarchical approach

provides an explanatory step, with the non-hierarchical approach providing the definitive step. After the Ward's algorithm was used to determine the optimal number of clusters, the mean scores on each hotspot for each Ward's derived cluster were then used as the chief input to seed the subsequent non-hierarchical cluster analysis. *k*-Means cluster analysis was the non-hierarchical algorithm used here. The purpose of applying *k*-means to the Ward's clusters is to fine tune the assignment of individual cases or participants to clusters more precisely. This result is achieved by maximising within-cluster homogeneity and maximising the distance between clusters (Hair et al., 2010). The final clustered participant responses are then displayed as profiles across the final hotspots.

Demographics Data

In addition to the MoSS sort, participants were asked about a number of demographic variables about the reporting parent and target child, including: sex of the parent, parent age, household size, parent religion, parent income range, sex of the child, child age and child school decile rating.

RESULTS

Hotspots and Interpretation

The structure of the GOPA map generated in Study Two was supported by the MoSS data from parental report of children's emotion regulation strategies. First a Pearson's *r* cophenetic correlation was used to compare the mean distances between corresponding pairs of items on each map. This revealed a moderate to strong correlation between the perceptual map and the subjective map (r =.56). Further to this, canonical correlations of the two maps indicated that all three dimensions were significantly correlated (R_c = 0.88; R_2 = 0.73; R_3 = 0.43; $p < .001$) according to Wilk's lambda test. The Procrustes distance, which measures the residual distances between corresponding items after one map is superimposed on the other and rotated to maximise the overlap between them, was low (g_1 = 0.138),

indicating minimal distance (mismatch) between each GOPA item and its counterpart MoSS item. These results indicate a good match between the objective (GOPA) and subjective (MoSS) models, meaning the GOPA map could be used with confidence as a framework for the MoSS data.

Table 3

Hotspot Labels and Their Highest Loading ChERI Items

Hotspot label	Item descriptor
Outward Engagement (ENG)	*Appears relaxed or laidback,* Uses humour e.g. makes a joke*,* Laughs or giggles, Plays with peers, Gets involved in a favourite activity e.g. a hobby
Inward or Somatic Focus (SOM)	*Feels sick e.g. sore tummy or headache,* Picks at skin or other parts of the body*,* Blames self, Chews fingernails, Cries or sobs
Disengagement *(behaviourally)* (DNG)	*Stares blankly,* Maintains an expressionless face, Seems unaware of surroundings, Freezes, Avoids reminders of emotional experiences e.g. situations or people
Disruptive (DRT)	*Physically hurts smaller children or animals,* Gets into fights, Damages things, Breaks rules, Lies or distorts the truth
Impulsive/Labile (IMP)	*Reacts without stopping to think,* Makes more noise than required, Gets restless, Dominates play with others, Cries or sobs
Social Connectedness/ Compliance (SOC)	*Does what s/he is told,* Asks for help or advice, Shows affection to familiar people e.g. hugs, kisses or cuddles*,* Asks for a hug or a cuddle, Eager to please others
Generating Closeness/Intimacy (INT)	*Shows affection to unfamiliar people e.g. hugs, kisses or cuddles,* Tries to sleep with main caregiver, Behaves more like a younger child, Eager to please others, Does what s/he is told
Establishing Order/Control (ORD)	*Sticks to structure or routine,* Repetitively plays out same stories during play, Cleans, Repeats certain routines, Eats
Generating Disorder (DRD)	*Tasks and activities become disorganised,* Appearance becomes scruffy*,* Becomes untidy or messy*,* Has problems completing tasks*,* Frowns or scowls

Note. Highest weighted items for the associated hotspot are italicised. ChERI = Children's Emotion Regulation Inventory.

Hotspot Descriptions

Nine hotspot domains accounted for much of the individual item variations within the ChERI items. These nine domains and the items contributing the greatest weighting to them (and, consequently, nearest in the multidimensional model) can be found in Table 3. Summary descriptions or labels for these hotspot domains were abstracted from these items.

Emotion Regulation Profiles and Interpretation

Once hotspot scores had been determined for each participant's child, it was possible to examine consistencies in profiles of hotspot scores. Ward's (1963) method of hierarchical cluster analysis was used to establish the appropriate number of similar profiles of hotspot scores found across the 151 participants. Q-factor analysis indicated a five to six factor solution; an examination of the Ward's HCA dendrogram and of the coefficient size in the agglomeration schedule indicated that all individual emotion regulation profiles could be reduced into five clusters of summary profiles. The Ward's method dendrogram and agglomeration schedule can be found in Appendix V.

Cluster validity checks demonstrated the five cluster solution to be stable. Both within-group and between-group average linkage demonstrated a five or six cluster solution, with the sixth cluster containing only one or two cases (deemed likely outliers). Profile examination of each cluster's mean hotspot scores demonstrated almost identical profile solutions/shapes generated from both average linkage algorithms when compared with Ward's method, when a sixth cluster was included to allow for a single or two item cluster. The three outliers identified from this step were removed and Ward's method reapplied to the remaining 148 cases. The 148 case dendrogramatic cluster solution was identical to the original 151 case tree, with two cases removed from cluster four and one case removed from cluster five. Sample split of 50% and randomising case order resulted in nearly identical cluster solutions.

Finally, multicollinearity between hotspot scores was assessed by correlating hotspot scores using Pearson's *r*. The *Disruptive* and *Impulsive/Labile* hotspots were found to be highly correlated (*r* = .92). The concern with multicollinearity within cluster analysis is that the correlated variables may unduly influence the cluster solution (Meyers et al., 2013). To examine this, the hierarchical cluster analysis was recomputed, excluding the *Disruptive* hotspot. The new solution reassigned less than 10% of cases to different clusters. Consequently, multicollinearity was not deemed to be exerting excessive influence on the original solution. Given the contribution of unique content from both hotspots four and five to the ChERI model, the correlated hotspots were retained.

To optimise the assignment of profiles to these five clusters, *k*-means cluster analysis was applied with *k*=5. The final, optimised solution demonstrated some variation in the number of profiles found in each cluster, with the bulk of profiles being assigned to cluster one (*N* = 42, 28%) and two (*N* = 45, 30%). Cluster three contained 30 profiles (20%), cluster four had 21 profiles (14%) and cluster five had 13 profiles (9%).

Table 4 outlines each archetype profiles' (described as *Profiles* from this point forward to differentiate from case-level profiles) characteristics and summary description based on the Profile's mean score on each hotspot. In interpreting and characterising the Profiles, particular attention was given to significant differences in mean hotspot scores. More specifically, ANOVAs were applied to examine differences in the Profile's mean hotspot scores and Profile points of difference were identified by the hotspot scores which differed significantly from all other Profiles. Results of the ANOVAs demonstrate all Profiles to differ significantly on hotspot scores. Results of the ANOVAs and a summary of post-hoc comparisons demonstrating which Profiles differed on which hotspots can be found in Tables 5 and 6. Graphic representation of these five Profiles can be seen in Figure 3, Figure 4 and Figure 5.

Table 4

Summary Characteristics and Description of Five Clusters of Profiles

Profile	Profile characteristics	Description
One	Strongly characterised by high *Outward Engagement* and *Social Connectedness/Compliance*. Also notable for high *Impulsive/Labile* scores. Characteristics also include low scores on *Establishing Order*, *Inward Or Somatic Focus* and *Disengagement*.	Sociable, connected and highly engaged profile of emotion regulation. Relatively labile or impulsive. Not overly socially compliant or "well-behaved"
Two	Strongly characterised by very high levels of *Outward Engagement* and *Social Connectedness/Compliance*. Also notable for very low scores on *Impulsive/Labile*, *Disruptive* and *Generating Disorder* hotspots. Conversely, moderate to high scores on *Establishing Order*	More outward and socially focused and highly organised compared to the other profiles. Relatively socially compliant or "well-behaved"
Three	Notable for moderately high scores on *Outward Engagement* and very high scores on *Social Connectedness/Compliance*. Characterised by low scores on *Generating Disorder* and *Disruptive* hotspots	A mid-point profile between Profiles One and Two in terms of social focus and compliance levels. Notably different from these two profiles in terms of being slightly more disengaged and focused inwards.
Four	Characterised by high levels of *Disruptive* and *Impulsive/Labile* and low levels of *Establishing Order*. *Social Connectedness/Compliance* lower than the first three profiles	More disruptive with more emotional displays. Can become disorganised or less focused on order. Is somewhat less socially focused than the first three profiles.
Five	Characterised by high levels of *Inward Or Somatic Focus* and *Disengagement* and relatively low scores on the *Disruptive* hotspot.	Less disruptive and more disengaged and inwards focused than other children in this sample. Appears to use avoidance as a key profile indicator.

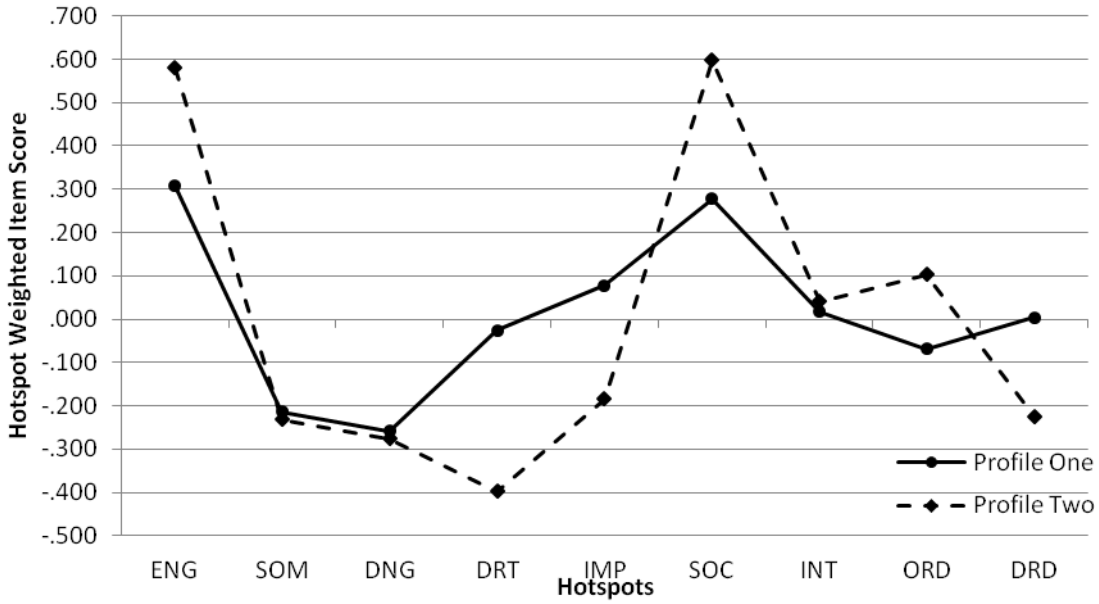

Figure 3. **Mean hotspot scores of all cases clustered into Profiles One and Two. ENG = Outward Engagement; SOM = Inward or Somatic Focus; DNG = Disengage; DRT = Disruptive; IMP = Impulsive/Labile; SOC = Social Connectedness/Compliance; INT = Generating Closeness/Intimacy; ORD = Establishing Order; DRD = Generating Disorder.**

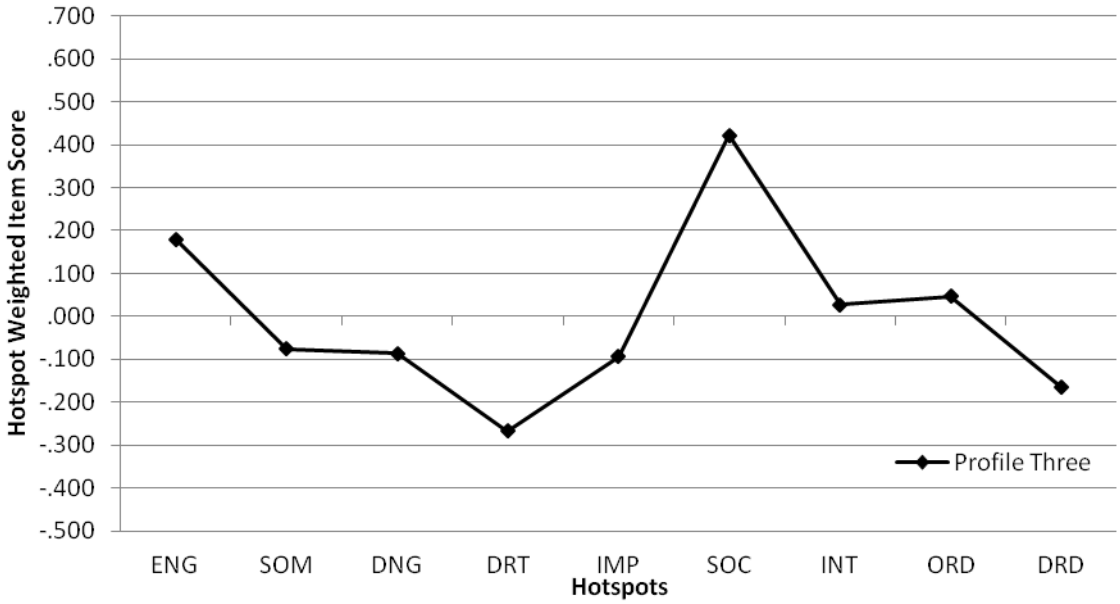

Figure 4. **Mean hotspot scores of all cases clustered into Profile Three. ENG = Outward Engagement; SOM = Inward or Somatic Focus; DNG = Disengage; DRT = Disruptive; IMP = Impulsive/Labile; SOC = Social Connectedness/Compliance; INT = Generating Closeness/Intimacy; ORD = Establishing Order; DRD = Generating Disorder.**

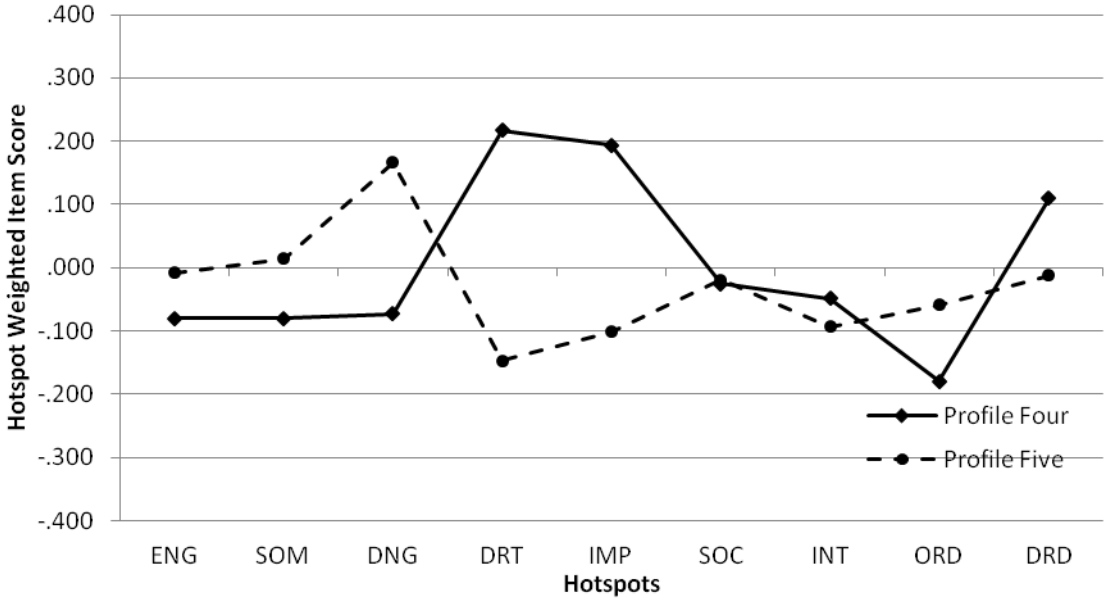

Figure 5. **Mean hotspot scores of all cases clustered into Profiles Four and Five. ENG = Outward Engagement; SOM = Inward or Somatic Focus; DNG = Disengage; DRT = Disruptive; IMP = Impulsive/Labile; SOC = Social Connectedness/Compliance; INT = Generating Closeness/Intimacy; ORD = Establishing Order; DRD = Generating Disorder.**

Table 5

Summary of Analyses of Variance Results Comparing Mean Children's Emotion Regulation Inventory (ChERI) Hotspot Scores by Five Emotion Regulation Profiles

ChERI hotspots		Sum of squares	df	Mean square	F
Outward Engagement	Between Groups	8.20	4	2.05	177.62***
	Within Groups	2.28	50[a]	.02	
	Total	10.47	54		
Inward or Somatic Focus	Between Groups	1.09	4	.27	29.88***
	Within Groups	1.33	146	.01	
	Total	2.41	150		
Disengage	Between Groups	2.71	4	.68	48.58***
	Within Groups	1.62	49[b]	.01	
	Total	4.33	53		
Disruptive	Between Groups	6.62	4	1.66	120.49***
	Within Groups	2.01	146	.01	
	Total	8.63	150		
Impulsive/Labile	Between Groups	2.80	4	.70	87.23***
	Within Groups	1.17	146	.01	
	Total	3.98	150		
Social Connectedness/Compliance	Between Groups	7.82	4	1.96	144.80***
	Within Groups	1.88	50[c]	.01	
	Total	9.70	54		
Generating Closeness/Intimacy	Between Groups	.26	4	.07	13.85***
	Within Groups	.69	146	.00	
	Total	.95	150		
Establishing Order	Between Groups	1.44	4	.36	35.32***
	Within Groups	1.49	146	.01	
	Total	2.93	150		
Generating Disorder	Between Groups	2.28	4	.57	39.58***
	Within Groups	1.94	51[d]	.01	
	Total	4.22	55		

Note. [a, b, c, d] Levene's test indicated unequal variance on the analysis for the Outward Engagement hotspot (F = 2.95, p = .022), the Disengage hotspot (F = 4.36, p = .002), the Social Connectedness/Compliance hotspot (F = 3.75, p = .006) and the Generating Disorder hotspot (F = 7.84, p <.001), so the Welch robust test of equality of means was applied and within groups degrees of freedom reduced to 50, 49, 50 and 51, respectively (Pallant, 2011).
***p < .001

Table 6

Mean, (Standard Deviation) and Significant Profile Differences of Each Emotion Regulation Profile's Hotspot Scores

Profile	*N*	ENG	SOM	DNG	DRT	IMP	SOC	INT	ORD	DRD
One	42	.31[a]	-.21	-.26[b]	-.03	.08	.28[c]	.02	-.07	.00[d]
		(.14)	*(.09)*	*(.11)*	*(.12)*	*(.09)*	*(.12)*	*(.08)*	*(.10)*	*(.10)*
		2***	3***	3***	2***	2***	2***	4**	2***	2***
		3***	4***	4***	3***	3***	3***	5***	3***	3***
		4***	5***	5***	4***	4***	4***		4***	
		5***			5*	5***	5***			
Two	45	.58[a]	-.23	-.28[b]	-.40	-.18	.60[c]	.04	.10	-.23[d]
		(.09)	*(.09)*	*(.07)*	*(.10)*	*(.09)*	*(.09)*	*(.06)*	*(.11)*	*(.10)*
		1***	3***	3***	1***	1***	1***	4***	1***	1***
		3***	4***	4***	3***	3***	3***	5***	4***	3*
		4***	5***	5***	4***	4***	4***		5***	4***
		5***			5***	5*	5***			5***
Three	30	.18[a]	-.08	-.09[b]	-.27	-.09	.42[c]	.03	.05	-.17[d]
		(.13)	*(.08)*	*(.11)*	*(.09)*	*(.08)*	*(.10)*	*(.05)*	*(.08)*	*(.07)*
		1***	1***	1***	1***	1***	1***	4**	1***	1***
		2***	2***	2***	2***	2***	2***	5***	4***	2*
		4***	5*	5***	4***	4***	4***		5*	4***
		5*			5*		5***			5***
Four	21	-.08[a]	-.08	-.07[b]	.22	.19	-.02[c]	-.05	-.18	.11[d]
		(.10)	*(.12)*	*(.14)*	*(.16)*	*(.10)*	*(.16)*	*(.08)*	*(.11)*	*(.20)*
		1***	1***	1***	1***	1***	1***	1**	1***	2***
		2***	2***	2***	2***	2***	2***	2***	2***	3***
		3***	5*	5***	3***	3***	3***	3**	3***	
					5***	5***			5**	
Five	13	-.01[a]	.01	.17[b]	-.15	-.10	-.02[c]	-.09	-.06	-.01[d]
		(.19)	*(.13)*	*(.13)*	*(.14)*	*(.09)*	*(.11)*	*(.07)*	*(.11)*	*(.10)*
		1***	1***	1***	1*	1***	1***	1***	2***	2***
		2***	2***	2***	2***	2*	2***	2***	3*	3***
		3*	3*	3***	3*	4***	3***	3***	4**	
			4*	4***	4***					

Note. Asterisked figures denote emotion regulation Profiles from which the Profile mean hotspot scores differ significantly according to post-hoc analyses. ENG = Outward Engagement; SOM = Inward or Somatic Focus; DNG = Disengage; DRT = Disruptive; IMP = Impulsive/Labile; SOC = Social Connectedness/Compliance; INT = Generating Closeness/Intimacy; ORD = Establishing Order; DRD = Generating Disorder. Tukey's HSD was used for post-hoc analyses.

[a, b, c, d] Levene's test indicated unequal variance on the analysis for the Outward Engagement hotspot ($F = 2.95$, $p = .022$), the Disengage hotspot ($F = 4.36$, $p = .002$), the Social Connectedness/Compliance hotspot ($F = 3.75$, $p = .006$) and the Generating Disorder hotspot ($F = 7.84$, $p < .001$), consequently, the Games-Howell post-hoc test was applied to compare Profile means for these variables.

*$p < .05$. **$p < .01$. ***$p < .001$.

Discussion

One hundred and fifty one parents took part in the third and final study to identify children's emotion regulation domains and patterns. The research procedures employed here enabled the achievement of the primary objectives of Study Three. Namely, the research organised the previously identified and categorised ChERI items into important subjective domains or hotspots of children's emotion regulation, interpreted these hotspots and examined how profiles of hotspot scores cluster together to form patterns of children's emotion regulation.

Hotspots

Nine hotspots of key emotion regulation strategies were identified from the ChERI MoSS scores: *Outward Engagement, Inward/Somatic Focus, Disengagement, Disruptive, Impulsive/Labile, Social Connectedness/Compliance, Generating Closeness/Intimacy, Establishing Order* and *Generating Disorder*. These hotspot domains can be considered as encompassing the significant areas of emotion regulating behaviours that emerged from the 85-item ChERI sort.

Despite the atheoretical approach taken in generating the hotspots, these nine hotspot domains appear to connect well with ideas from the current emotion, coping and behaviour literature. In fact, the hotspot solution may begin to provide an initial understanding which encompasses or even connects multiple approaches to children's emotion regulation.

Research literature drawing on Gross' process model of emotion regulation (Gross, 1998b) as applied to children in the 6-12 year age bracket has primarily focused on only two of the strategies from the five-stage model: cognitive change and response modulation (Bariola, Hughes, & Gullone, 2012; Gresham & Gullone, 2012; Gullone et al., 2010). These two overarching strategies have been operationalised to *cognitive reappraisal* and *expressive suppression*, which means all lower order strategies measured using this model should be separated into one of these two categories. The model behind the ChERI hotspots considers emotion regulation

from a different perspective, which means strategies do not cluster neatly together by *when* the strategy is used in the emotion-generative process, but by *how* it is used in context and the *goal* the strategy aims towards. Consequently, no single hotspot aligns with the process model. Instead, as mentioned in Study Two, some individual items reflect strategies which might be deployed at a specific stage, with others able to be deployed across several of Gross' five stages in the emotion generative process.

It is fair to note, that many of the ChERI items can comfortably sit in the situation selection (e.g. Avoids trying new things; Temporarily leaves a situation), situation modification (e.g. Tries to sleep with main caregiver; Asks for help or advice), attention deployment (e.g. Plays video games; Daydreams) and response modulation (e.g. Takes deep breaths; Acts staunch or tough) stages, with several items able to correspond with multiple stages (e.g. "Gets into fights" might be used to modify a situation, distract attention or respond to an emotional event). Cognitive change is the obvious omission from the ChERI items. This omission is intentional and relates to the intention behind other-report item creation; which was to avoid items which may require making assumptions about a child's mental processes. Any items that might appear cognitive (e.g. "Pretends to be somewhere else") are offset by the method of asking about the item (i.e. is this strategy more or less *noticeable* for your child). Apart from this intentional omission, the ChERI items (derived in accordance with the goal-oriented model discussed in Chapter Two) align well with Gross' process model, if one considers viewing emotion regulation from a slightly different direction.

Clear links can be seen with the ChERI-derived hotspot domains and the literature describing internalising and externalising behaviours. Research literature demonstrates links between internalising/externalising and emotion or emotion regulation (Eisenberg et al., 2001; Rankin Williams et al., 2009). As the ChERI items were created based on emotion regulating *behaviours*, it is not surprising to see items that reflect internalising or externalising behaviours. However, also apparent are several hotspots that seem to suggest internalising and externalising processes.

More specifically, without assuming an underlying pathology or emotional state, internalising behaviours (or those behaviours that appear inhibited) appear captured by the hotspot *Inward/Somatic Focus* and perhaps partially by the *Disengagement* hotspot. Additionally, elements of the hotspot *Establishing Order* may also link with internalising processes, such as obsessive compulsive behaviours. Conversely, externalising behaviours can be seen across three key hotspots, including *Disruptive, Impulsive/Labile* and *Generating Disorder*. The presence and prominence of hotspots echoing internalising and externalising processes indicates the importance and relevance of these processes when considering a child's emotion regulation.

Taxonomies of emotion regulation strategies have not previously been applied to the examination of children's emotion regulation. However, this application has been made with adult emotion regulation (Parkinson & Totterdell, 1999; Totterdell & Parkinson, 1999). Parkinson and Totterdell applied hierarchical cluster analysis to a card sorting task where participants made conceptual distinctions between 162 self-report oriented emotion regulation strategies aimed at managing unpleasant emotions.

Parkinson and Totterdell (1999) were able to identify higher order distinctions between behavioural strategies versus cognitive strategies and engagement versus diversion strategies. The engagement concept included lower-order clusters of rationalisation, reappraisal, seeking social support or venting. The diversion concept included avoidance strategies, active or constructive activities, relaxing or pleasant activities and cognitive distraction. Although labelling between ChERI hotspots and Parkinson and Totterdell's clusters can, at times, be at cross-purposes, many of the concepts align closely. For example, the *Outward Engagement* hotspot involves items that send the child looking for external stimulation or engagement. However, Parkinson and Totterdell's engagement concept sends the person to either engage with the concern itself, or ways to resolve it. Items in the *Outward Engagement* hotspot instead mirror items in their behavioural distraction more closely. Despite the differences due to their inclusion

of cognitive strategies, labelling conventions, the use of unpleasant emotions as the context and the adult application, the classification divisions identified by Parkinson and Totterdell are remarkably comparable with the ChERI hotspots.

As can be seen in Table 7, six of the nine hotspot domains have comparable clusters or items from the Parkinson and Totterdell research. Although the ChERI hotspots are designed to avoid implying cognitive processes, two of the cognitive clusters have items which could be considered close counterparts to the *Disengage* cluster. Of the behavioural concepts, only the Take Action cluster does not have a clear match. The concept of Take Action refers to the specific situation or concern which caused the emotion to arise and is closely linked with the coping literature. As every single lower order behaviour aimed at resolving an emotion-eliciting situation (e.g. call a mechanic to fix the car that caused the emotion of frustration) cannot be practicably itemised, this concept was intentionally omitted from the ChERI list. Needless to say, the ability of a person or child to take action in an emotional situation could be considered a good indicator of their emotions being appropriately regulated.

Although the Distraction – Relaxation cluster does not link cleanly with the *Outward Engagement* hotspot, several items from the ChERI marry with the behavioural relaxation items found in the cluster analysis, including: “Appears relaxed or laidback”, “Eats”, “Takes deep breaths” and “Reads a book”. However, these items did not hang together in either the multidimensional scaling analyses or the cluster analysis from Study Two. Consequently, they did not form a cluster or a hotspot in the GOPA or MoSS maps, perhaps getting “pushed” out by more prominent clusters and hotspots. However, the concept of Distraction – Relaxation can be observed in the ChERI items, with *Outward Engagement* the most overarching of the hotspots.

Table 7

Comparison of Parkinson and Totterdell's Adult Classification of Affect Regulation with ChERI Hotspot with Key Items

Parkinson and Totterdell's Adult Taxonomy		ChERI Hotspot Parallels	
Cluster Descriptor	Significant Item	Hotspot Descriptor	Significant Item
Behavioural Diversion			
Disengage	*Avoid arguments*	Inward/Somatic Focus Disengage	Chews fingernails Avoids reminders of emotional experiences
Distraction – Pleasure	Pursue hobby	Outward Engagement	Gets involved in a favourite activity
Distraction – Relaxation	Sleep	Outward Engagement	Appears relaxed or laidback
Active/Constructive Distraction	Exercise	Outward Engagement	Plays with peers
Behavioural Engagement			
Vent Feelings	Scream	Impulsive/Labile Disruptive	Yells or screams Damages things
Help/Comfort Seeking	Seek reassurance	Social Connectedness/ Compliance	Asks for help or advice
Take Action	Resolve problem (usually affect-directed)	N/A	
Cognitive Diversion			
Disengage	Try to think of nothing	Disengage	Stares blankly
Distraction – Pleasure	Think of other places I could be	Disengage	Seems unaware of surroundings
Distraction – Relaxation	Calm self down	N/A	
Active Distraction	*Think about something that occupies attention*	Outward Engagement	
Cognitive Engagement			
Reappraise	Tell self situation will pass	N/A	
Think about how to solve problem	Think rationally about problem	N/A	

Note. Significant items in italics indicate specific or prototype items not directly available and descriptors from the authors' revised scheme used instead. ChERI = Children's Emotion Regulation Inventory. N/A = Not applicable and indicates no directly comparable hotspots or groups of items. Adult items and classification scheme adapted with permission from "Classifying Affect-regulation Strategies," by B. Parkinson and P. Totterdell, 1999, *Cognition & Emotion,* p. 300. Copyright 1999 by Psychology Press.

Importantly, the nine domains of children's emotion regulation strategies align well with the definition and goal-directed model of emotion regulation provided in earlier chapters. The interpretation of the domains and, hence, the labels used to describe the domains follow the same guidelines as the original items. Consequently, they are not specific to or contingent on a particular context, emotion or goal. Children can be seen to deploy a domain of these strategies across a wide array of emotion eliciting situations. This detachment from specific emotions and contexts means has significant implications for how the ChERI can be used clinically and in research. The same measure in its current format can be applied to varying children, by varying informants and across varying situations. No specific emotion or context needs to be recreated, elicited or discussed when referencing the items and no assumption is required for a child to be regulating well or poorly. Consequently, the ChERI can be used to assess strategy use across situations, contexts and emotions.

Additionally, the nine domains of emotion regulation are inclusive of the five elements of emotion regulation described in the goal-directed model: behavioural, experiential, cognitive, physiological and interpersonal. As previously mentioned, the items outlined for this research are intentionally behavioural or observable, thus the behavioural component of the model is the most visible across the nine domains. However, cognitive, physiological, experiential and interpersonal components can also be seen. For instance, *Social Connectedness/Compliance* and *Generating Closeness/Intimacy* reflect key interpersonal strategies; the somatic portion of *Inward or Somatic Focus*, as well as the physicality of some of the *Generating Closeness/Intimacy* items suggest physiological attempts at regulating; *Inward or Somatic Focus* and *Disengagement* emotion regulating behaviours are more suggestive than the other domains of underlying cognitive strategies; and *Disengagement* suggests possible attempts at experiential regulation. However, these domains and elements do not match perfectly or mutually exclusively. For example, other domains can also incorporate cognitive regulation; e.g*., Outward Engagement* might involve efforts at cognitive distraction.

Profiles

Five clustered patterns of children's emotion regulation (Profiles) were identified from the case-level profiles of hotspot scores. Profile One is very social, well-connected to others, highly engaged with the world around them, yet also quite impulsive with lower levels of compliance. Profile Two is also very outwardly and socially focused, but also demonstrated higher levels of compliance and order. Profile Three tended towards being a mid-point between Profiles One and Two, but unique in that children in this Profile tended more towards strategies that detached them from the external world – more inward-focused and disengaged. Profile Four tended towards higher levels of impulsivity and disruptive behaviours, with lower levels of organisation and social connection. Profile Five was notable by the dominant use of strategies that look like avoidance, including considerably higher scores on *Inward/Somatic Focus* and *Disengagement* hotspots.

Although a small number of studies have investigated profiles of children's emotion regulation, all previous examinations have been context, pathology or emotion-specific when considering or deriving emotion regulation strategies and their profiles (e.g., Carthy et al., 2010; Endrerud & Vikan, 2007; Zalewski, Lengua, Wilson, Trancik, & Bazinet, 2011b). Carthy and colleagues' child emotion regulation profile groupings were based on Gross' (1998b) process model of emotion regulation, yet drew upon Parkinson and Totterdell's (1999) classification system. Although the average age of the children in their study was somewhat older (10-17yrs), than the current research, it is important to note the need to rely on an adult-based taxonomy to generate these groupings (i.e., as there is nothing similarly developed with children in mind).

Each of the five Profiles was generated through clustering individual case scores on key emotion regulation domains. Although certain emotion regulating behaviour categories or areas might be considered easier for a parent or teacher to deal with, the domains themselves are not categorised as inherently positive or negative. In accordance with the theoretical approach taken with this research, it must be recognised that each strategy domain is useful in context. Consequently, each

Profile pattern can be considered to have developed out of a need for contextually beneficial strategies. For example, one might look at Profile Two and see a pattern of emotion regulating behaviour that a parent or teacher would prefer. This child appears highly engaged and involved in enjoyable tasks, uses humour, works well with others, asks for help when needed and seems to enjoy order. However, every single strategy and strategy category can be useful and beneficial or unhelpful and detrimental depending on how the strategy is used. The compliant child may be overly compliant at times when she should challenge. The outwardly engaged child may be relying too heavily on these strategies in efforts to distract or avoid difficulties that require attention. Each of these domains represents a fundamental emotion regulation skill that should be developed to a point where they can be enacted judiciously, rather than becoming so ingrained that they are enacted inevitably.

These domains and Profiles provide only a preliminary and summary "snapshot" of typical emotion regulation patterns and behaviours. However, they can still provide guidance and information to clinicians, parents, teachers and other invested adults whose job is to support a child's emotional development. For example, Profile Two reflects a child whose emotion regulating behaviours likely make her an "easy" child to teach and parent. She is highly outwardly engaged, tidy and socially connected and compliant. She does not tend to be disruptive or make a mess. Her emotion regulation strategies generally translate well to multiple environments and contexts. However, children in Profile Two still have gaps in their collection of deployable strategies and still have strategies they rely on heavily, even when such strategies may not be appropriate to use. Supporting such children to learn strategies that might involve creating a disruption or mess could help them develop confidence enough to deploy them when needed, further strengthening their emotional development.

CHAPTER SIX

IMPLICATIONS AND CONCLUSIONS

Research Summary

This research started out with the broad aims of examining how researchers conceptualise and assess children's emotion regulation and what factors contribute to the development of a child's regulatory repertoire. A review of the available literature suggested goals and contexts were vital to emotion regulation processes but no single definition or model accounted for these. Consequently, this paper began by presenting a new definition of emotion regulation which incorporated previous definitions, whilst still accounting for the importance of individual goals and contexts. Additionally, the goal-directed model of emotion regulation was developed as a framework from which understandings of both child and adult emotion regulation could be developed.

The review of the literature also revealed that researchers and clinicians had no practical, yet detailed assessment tools with which to examine types and patterns of children's emotion regulation. Consequently, a series of three studies was undertaken, underpinned by my definition and goal-directed model of emotion regulation. The aims were to develop and structurally organise a set of items that could be used to investigate children's emotion regulation and then to use these items as a way to examine important domains and fundamental patterns of emotion regulation used by typical children.

From this series of studies, 85 items comprising the Children's Emotion Regulation Inventory were developed and organised based on lay and expert understandings of how the items theoretically fit together. This conceptual organisation provided the backdrop for understanding how the items fit together when applied to typically developing children. This resulted in the empirical extraction of nine

domains of children's emotion regulation. When individual profile scores across these domains were clustered, five summary Profiles of emotion regulation were generated.

Implications, Limitations and Opportunities for Future Research

Like all psychological research, there were several limitations experienced by this series of studies. One key issue is the risk of sampling bias. The sample from the final study was one of convenience and, barring exclusion criteria, the participants effectively self-selected. Additionally, proactive recruitment from specific populations to ensure a broader coverage or more representative sample was ethically unviable. Consequently, the sample underrepresented fathers, non-biological parents, Māori parents, children from lower decile schools and families with a lower socio-economic status.

Although the number of fathers in the final study was disproportional to the number of fathers in the general population, this distortion may in fact reflect the practical division of parenting or primary care-giving between mothers and fathers (Department of Labour, 2009). Consequently, the sample could be considered as more representative of "primary caregivers", rather than all parents in New Zealand. By extension, a sample of primary caregivers may have been better positioned to report on a child's emotion regulation than any other family member.

It is possible, even likely, that certain patterns of children's emotion regulation profiles were not recognised or identified from this research. For example, three outliers were found during the validity check of the Ward's method cluster analysis. Rather than being outliers, they might actually reflect patterns of emotion regulation that would become apparent with broader and more diverse sampling. In order to apply the Profiles more readily to a clinical, or even the wider population, a replication of this study drawing on a broader sample and using active or targeted recruiting methods will need to be considered.

The method of data collection in the final study may also influence the reliability of results. All data were collected by parent-report. Thus, opportunities for other-report and social desirability bias exist. Using parental-report to collect information regarding children's emotion regulation may have introduced further bias. Future research may consider drawing on multiple sources of information on the target child's emotional behaviour to establish the validity of the results found here.

Finally, the overall research focused on observable behavioural representations of children's emotion regulation. Certain concepts from within the emotion regulation domain were intentionally excluded, such as: explicitly cognitive strategies or specific lower order problem-solving coping-based items. Consequently, there may be areas, or perhaps types of emotion regulation that are not fully captured. However, this does not preclude the ChERI from being a useful tool in research or clinical practice. For example, Niven, Totterdell, Stride and Holman (2011) used Parkinson and Totterdell's (1999) classification system in conjunction with other measures to develop a new measure which assesses adult's abilities to regulate themselves and others. The ChERI could be drawn upon in a similar manner, for example, including behavioural observations and child self-report measures to examine specific coping behaviours and cognitive processes.

Bicultural Considerations

One psychology does not suit all cultures; hence one psychological research epistemology cannot be applied to all people. In the New Zealand context, advocates have come to understand the distinct need for biculturally safe and appropriate forms of research positioned from a Māori frame of reference or world view.

A number of historic social or cultural investigations which have been directed towards Māori have had little benefit to the research participants and have, in some cases, even had detrimental social effects (Gibbs, 2001). For example, the Rākau

studies and the Kōwhai studies in the late 1950's, which supposedly provided sound verification for the enforced assimilation of Māori into European life, in fact also propagated a scientific basis to prejudice, both of which were detrimental to the ongoing cultural development of Māori (Stewart, 1997).

It is vital to clearly outline the implications of the current research from a bicultural perspective. Firstly, it is important to acknowledge what this research is *not*. This research was not designed to disentangle differences between Māori and Pākehā in their parenting or in children's emotion regulation. It was also not designed to identify areas of commonality. This researcher recognises and respects that the varying degree to which Māori people have access to te reo Māori (Māori language), whenua tipu (ancestral land), whanaungatanga (kinship ties), whakapapa (genealogy or ancestral knowledge) and tikanga Māori (the Māori way) (Durie et al., 1996) highly influences the varying degree of connection with Te Ao Māori that can be found amongst Māori people. However, I also recognise that this study did not seek to delineate the strength of connection with Te Ao Māori when considering Māori participants and children.

Although this research did not seek to create or define strategies specific to Māori, some of the hotspot domains and dimensions found in this research could, superficially at least, align with concepts from Māoridom. For example, whakawhanaungatanga, (the notion of connectedness, relating and relationships) seems to align somewhat with the concepts uniting the *Connection* dimension and the *Social Connectedness/Compliance* hotspots. However, it is important to note that concepts and areas of strategies Māori children might use to regulate emotions may not be fully captured by the ChERI or the Profiles and hotspot domains that have emerged.

The Māori participants and children involved in this research cannot automatically be considered as representative of all Māori. For example, given the nature of the recruitment methods, it is possible rural Māori are disproportionately underrepresented, with urban Māori making up the bulk of Māori participants.

Consequently, considerable caution should be exercised when examining the results of this research. Future supplementary research may like to draw on the approaches used in these studies to examine more closely the whatumanawa (emotional world and expression of emotion) of Māori children.

Implications for Future Research and Clinical Practice

There are several implications of and opportunities for the ChERI items, the Profiles and the hotspots in ongoing research and clinical practice. Firstly, and most importantly, for the ChERI to ever be useful as a measure of children's emotion regulation in either research or clinical practice, validity and reliability studies will need to be conducted. These might include a study drawing on a broader sample examining the test-retest reliability of the hotspot scores and Profiles and investigating construct validity by comparing results against similar and divergent measures (including observational measures). Additional research may examine these items when different informants (other parent, social workers etc) use the ChERI items to report emotion regulation behaviour. The beginnings of construct validity testing have been started, and the results of an examination of the ChERI within a nomological network of relevant variables can be found in Appendix W.

Once a more rigorous assessment of the measure has been undertaken and accuracy and stability is deemed satisfactory, the ChERI could become a useful tool in clinical practice. Practitioners working with children and families may benefit from using the ChERI items, Profiles and hotspots in a range of ways. Firstly, the measure may be useful to assess and re-assess a child's emotion regulation patterns in order to inform the therapeutic approach. Secondly, the Profile patterns may be observed clinically to establish more clearly whether and how a child's emotion regulation might be changing over time – perhaps in response to therapy. Thirdly, a clinician may use the ChERI items themselves as a way of thinking about the child they are working with and, perhaps, as a way to contribute to a working formulation about the client.

Conclusions

This research process began with the intention of investigating an area quite divergent from the ultimate thesis topic. But it quickly became apparent that childhood was an excellent starting point. It also quickly became apparent that emotions are key, not just to the field of clinical psychopathology, but to understanding overall well-being and functioning. The pathway from research idea to research conclusion resulting in an examination of children and emotion is not an extraordinary one. It has been trodden before; by some extraordinary minds.

Nonetheless, this series of studies has made a unique contribution to the field of psychology. A new working model has been developed which can be used to frame emotion regulation in context. This model has been tested in that it successfully served as a framework with which to generate and understand items for a measure of children's emotion regulation. A new inventory has been constructed which can be used to inform researchers and clinicians about how a child is managing feelings. The inventory has been used to yield, interpret and describe important domains of children's regulation. The inventory and subsequent domains have also been used to extract and describe distinctive patterns of children's regulation.

Importantly, several considerations were made with this research that had previously been somewhat neglected. For instance, researchers have been increasingly identifying middle childhood as requiring further attention, as relatively less is understood about emotion regulation processes during this time than any other age group. Consequently, this research focused specifically on children in the 6-12 year age range. Additionally, despite scholars recognising the importance of goals and contexts to the success or failure of specific strategies, no attempt had previously been made to incorporate these factors into models of emotion regulation or measures of children's emotion regulation. Finally, although some attempts have previously been made to reveal patterns or profiles of children's emotion regulation, these patterns were closely linked to specific emotions or psychopathology. The present studies are the first to detail "trans-emotional" profiles of strategies used by typically developing children.

Although the original research idea shifted from adult psychopathology to children's emotion regulation, many aspects of this research could ideally inform research and clinical work with adults. The goal-directed model is equally applicable to adult populations and could be used to frame or direct a similar series of research into adult emotion regulation. The methodological processes used here, including MDS and cluster analyses, provided an exciting yet readily interpretable and clear way of looking at emotion regulation. These could equally be applied to adult research. Finally, a major driver for practitioners and researchers working with children is being able to contribute to their developing into successful, contented adults. If the ChERI ever becomes a measure that can support the development of interventions targeting difficulties with emotion regulation, then it may also help prevent ongoing difficulties with psychopathology in adulthood.

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APPENDICES

APPENDIX A

LETTER OF INVITATION: STUDY ONE

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Creating an Inventory of the Emotion Regulation Strategies Children Use

(Please use the attached coffee bag to brew yourself a coffee to drink while pondering this proposal)

Letter of Invitation

As part of my Doctoral in Clinical Psychology, I am investigating how children (aged 6-12) manage their emotions and would like to invite you, as an experienced practitioner, to participate in a focus group discussion on this subject. This research is aimed at developing a comprehensive, New Zealand-relevant inventory and natural language of the emotion regulation strategies children use.

Your experience, expertise and input will provide us with a broad collection of emotion management strategies that New Zealand children use, which could ultimately help practitioners understand the strengths and weaknesses of a child's emotional coping abilities. Furthermore, we hope this will be an exciting opportunity for you to make connections with other specialists in this field and, at the same time, voice your opinion on this especially important subject.

A $20 gift voucher (either Motor Trade Association or movie voucher) will be posted to you as koha in appreciation of your time and travel. All sessions will be held outside of regular office hours at the Massey University Psychology Clinic and light refreshments will be provided.

I will be in touch in the next week by phone or email with more information.

Many thanks,

Angela Macfarlane

p.s. If you know of other skilled practitioners who might be interested in participating in these focus groups, please let me know by emailing me at angelamacfarlane@hotmail.com

APPENDIX B

INFORMATION SHEET: STUDY ONE

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Creating an Inventory of the Emotion Regulation Strategies Children Use

You are invited to take part in a focus group discussion about the emotion regulation strategies children use. The research is being undertaken by Angela Macfarlane, and is supervised by Massey Psychology Clinic Director, Dr. Shane Harvey; Senior Clinician, Jan Dickson; Associate Professor, Dr. John Spicer; and Honorary Research Affiliate, Dr. David Bimler. This study is towards a Doctor of Clinical Psychology at Massey University. If you have any cultural concerns or questions about the processes involved in this research, please contact Angela Macfarlane (contact details below).

AIM: To develop a comprehensive inventory of the emotion regulation strategies used by children aged 6-12. Part of this study will involve extracting items from the literature, previous research and current reporting tools. The focus group portion involves gathering together practitioners who work with children to talk about the emotion regulation strategies they see children use. Participants were selected through "snowball sampling" of known associates of the researchers. We will hold between 3-5 focus groups, each involving up to 8 participants. Participants have been selected based on experience working with children. Our inclusion criteria states that you should have at least 3yrs experience working regularly (weekly) with children aged 6-12.

WHAT WILL HAPPEN: You will be asked to attend one of our focus group sessions, held at Massey University's Psychology Clinic (see map attached). Four broad topic areas will be discussed during the session, which should take approximately 90 minutes. These topics include:

- strategies you have seen children use when they are trying to deal with their emotions or emotional responses
- the kinds of emotion regulation strategies you consider to be beneficial or useful
- the strategies you would consider to be counterproductive or unhelpful
- the signs you look out for when you are worried that a child is having trouble regulating his/her emotions

We will ask you to comment on each topic, and contribute to the greater discussion they generate. You should allow two hours for the discussion. A $20 gift voucher (either Motor Trade Association or movie voucher) will be posted to you after your session as koha in appreciation of your time and travel. After the

discussion, the principal researcher will transcribe the discussion, leaving out any data that may identify you. No material that could personally identify you will be used in any reports on this study. This study is expected to take up to 6 months. Once the inventory has been generated, it will be sent to you for review. At this time you are welcome to discuss with the researcher any changes or additions you feel might be necessary. The items obtained from these discussions will be used in ongoing research investigating patterns of emotion regulation strategies deployed by maltreated children.

BENEFITS, RISKS AND SAFETY: The purpose of this study is to clarify the content domain and develop a natural vocabulary for the emotion regulation strategies children use. Once this has been achieved, the items can be used in myriad ways, including assessing how children are coping (emotionally) after a major stressor in their lives.

This research may help provide greater understanding of the emotional changes that occur in children in response to traumatic events or other stressors. It also has the potential to extend our understanding of the range of emotion regulation strategies children use. Furthermore, if adequately refined and defined, the inventory may become useful in assessing the consequences of trauma and assessing the outcomes from treatment. We also hope that the focus groups will provide you with the opportunity to make connections with other individuals in this field. Despite these potential benefits, some small risks are inherent in focus group research.

- Participants taking part in focus groups may say more than they wanted to on personal topics. This is why we will ask you to jot down thoughts on the topic areas prior to coming; and request that you keep the discussion related to your professional experience rather than personal life.
- As the conversation will be heard by other participants, there is some potential for breaching privacy. We will minimise this by explicitly discussing the issue prior to starting the recorded session, informing you of the limits of confidentiality and privacy, reminding you of your rights to withdraw and, finally, we ask that you do not identify other participants or the content of the discussion to other individuals.

The opportunity to debrief with Angela Macfarlane (or Shane Harvey/Jan Dickson, if requested) will be provided both immediately after each session and in a follow-up phone call two days later.

YOUR RIGHTS: Once transcribed, your role in the discussion will become anonymous. The transcription will be undertaken by Angela Macfarlane. After analysis is complete, the recordings and transcriptions will be stored in a locked and alarmed facility at the principal researcher's office at Massey

University for 5 years after the research is finished. After this, the raw data not approved for archiving will be destroyed.

You are under no obligation to accept this invitation to participate. If you do participate, you have the right to: decline to answer any particular question; withdraw from the study at any time; ask any questions about the study at any time during participation; provide information on the understanding that your name will not be used; be given access to a summary of the project findings when it is concluded and; ask for the digital voice recorder to be turned off at any time during the interview. You do not need to provide any reason if you choose to withdraw or decline to answer any question.

We will do our utmost to ensure your privacy and confidentiality as a participant; however, we must inform you that there is always a small risk of an inadvertent breach of your privacy. If you have any queries or concerns regarding your rights as a participant in this study, you may wish to contact your professional organisation.

This study has received ethical approval from the Central Regions Health and Disability Ethics Committee, ethics reference number MEC/09/49/EXP. Feel free to contact the researchers if you have any questions about the study. If you have any concerns about the conduct of this research that you wish to raise with someone other than the researchers, please contact Professor Sylvia Rumball, Assistant to the Vice-Chancellor (Research Ethics), telephone 06 350 5249, email humanethics@massey.ac.nz.

CONTACT DETAILS:

Angela Macfarlane: *angelamacfarlane@hotmail.com* or 06 356 9099 x7179
Shane Harvey: *s.t.harvey@massey.ac.nz* or 06 356 9099 x7171
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APPENDIX C

CONSENT FORM: STUDY ONE

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CREATING AN INVENTORY OF THE EMOTION REGULATION STRATEGIES CHILDREN USE

PARTICIPANT CONSENT FORM

This consent form will be held for a period of five (5) years

Please tick the boxes if you agree with the following statements:

I agree to the interview being audio recorded. ☐

I have read the Information Sheet and have had the details of this study explained to me. ☐

I agree to participate in this study under the conditions set out in the Information Sheet. ☐

I have had enough time to consider whether to take part in this study. ☐

I have had an opportunity to discuss the study and my questions have been answered to my satisfaction. ☐

I understand that I may ask further questions at any time. ☐

I wish to have a summary of the final results mailed/emailed to me. ☐

I understand that taking part in this study is voluntary and that I may withdraw from the study at any time. ☐

I understand that my participation in this study is confidential and that no material that could identify me will be used in any reports on this study. ☐

I agree to have my data placed in an official archive for use in future research. ☐

I wish to have an interpreter. ☐

Signature: _____ **Date:** _____

Voucher Preference (circle one): MTA Movie

Full Name (printed):

Address you would like your voucher and/or item inventory sent to:

Consent Form V.1 Page 1 29/06/2009

APPENDIX D

RECORDING SHEET: STUDY TWO

Participant #:_____

Date of birth:	Ethnicity:	Gender:	Occupation:

STEP ONE – GROUPING

Make between 10-20 different groups of similar items with no more than 18 items per group. A group may have a single item. Keep each group's items on the same line. Please write neatly and don't number the groups

Example: 4 98 16 32 8 54

STEP THREE – SUB-DIVIDING

Copy all numbers from Phase 1 onto the same line but this time reorder item numbers within brackets. Use brackets to show sub-groups of how the most similar items go together. A sub-group can have a single item within brackets

Example: (4 32 8) (98 54) (16)

STEP TWO – OPPOSITES

Look over the Phase-1 groups to find the most **different** pair of groups. Record these "opposites" by entering any one item number from each group in the spaces below. (Opposite set 1). Try to repeat the process for the next most different pair (Opposite set 2), and for Opposite set 3. Don't move items around between groups.

Opposite set 1:____/____

Opposite set 2: ____/____

Opposite set 3: ____/____

STEP FOUR – ADDING

This time join together the most **similar** groups from Step One into supergroups. Physically place these similar Step One item groups together, and enter any one item number from both groups into the spaces below. Only some groups will join up and many will not. Try to make at least two pairs. If there are more than 3, continue making pairs

Similar set 1:____/____

Similar set 2: ____/____

Similar set 3: ____/____

APPENDIX E

INFORMATION SHEET: STUDY TWO – LAY PEOPLE

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ORGANISING THE EMOTION REGULATION STRATEGIES CHILDREN USE

You are invited to take part in a study about the emotion regulation strategies children use. Your participation is entirely voluntary and if you do agree to take part, you are free to withdraw from the study at any time without having to provide a reason. The research is being undertaken by Angela Macfarlane, and is supervised by Massey Psychology Clinic Director, Dr. Shane Harvey and Honorary Research Affiliate, Dr. David Bimler. This study is towards a Doctor of Clinical Psychology at Massey University. If you have any queries or concerns regarding your rights as a participant in this study, you may wish to contact your professional organisation. If you have any cultural concerns or questions about the processes involved in this research, please contact Angela Macfarlane (contact details below).

Aim: A previous study has identified 103 individual strategies that children aged 6-12 often use to regulate their emotions. This study aims to find the underlying structure of the items, so they can be used to assess the kinds of patterns children are using to regulate their emotions. This study requires at least 15 male and 15 female participants who are over 18, who speak English as a first language and who do not have a postgraduate qualification in psychology. A similar study drawing on individuals with postgraduate qualifications in psychology will be undertaken and statistically compared against this study to check how valid our data is. Based on previous research, at least thirty individuals are required to take part in this study to generate enough data to provide a valid structure of the items. Participants have been selected through known associates of the researcher and supervisors.

What will happen: You will be given a deck of 103 cards, each with a short statement written on it describing a strategy a child might use to regulate emotion. You will be asked to organise these statements into groups based on your judgment of their "face value" similarity to each other. You will then be asked to identify opposite groups, sub-divide the groups and finally merge the groups. You will be given an anonymous recording sheet to record these sorts as you go. This procedure will take approximately one hour and will be carried out at a location convenient to you.

After the data from these tasks have been collected, it will be entered onto the computer and analysed by the researchers named above. Your identifying information on the consent form will be kept separate from your recording sheets and kept for contact purposes only (e.g. to send vouchers and summary of findings if requested). The recording sheets and consent forms will be kept in a locked cabinet in a secure facility for five years following the completion of this study. The data will be entered and stored on a password locked computer. After five years, any data not approved for archiving will be destroyed.

A $20 gift voucher (either motor trade association or movie voucher) will be posted to you as koha for your time, travel and efforts. At the same time, a results summary will be sent to you if you requested one. No material that could personally identify you will be used in any reports on this study. This study is expected to take up to 6 months. The data obtained from these tasks will be used in ongoing research investigating patterns of emotion regulation strategies deployed by children.

Benefits, risks and safety: This study is part of a larger piece of research aimed at examining the emotion regulation strategies children use. Once this has been achieved, the items can be used in myriad ways, including assessing how children are coping (emotionally) after a major stressor in their lives. This research may help provide greater understanding of the emotional changes that occur in children in response to traumatic events, maltreatment or other stressors. It also has the potential to extend our understanding of the range of emotion regulation strategies children use. Furthermore, if adequately refined and defined, the inventory may become useful in assessing the consequences of trauma and assessing the outcomes from treatment.

No significant risks or safety issues have been identified as a part of this study, however, if you experience any negative effects or concerns as a result of participating in this study, please contact Angela Macfarlane as soon as possible as we may need to discontinue the study.

Your rights: You are under no obligation to accept this invitation to participate. If you do participate, you have the right to: decline to answer any particular question; withdraw from the study at any time; ask any questions about the study at any time during participation; provide information on the understanding that your name will not be used and; be given access to a summary of the project findings when it is concluded. You do not need to provide any reason if you choose to withdraw or decline to answer any question. We will do our utmost to ensure your privacy and confidentiality as a participant; however, we must inform you that there is always a small risk of an inadvertent breach of your privacy. Other than this, there are no known potential risks for harm or significant discomfort for you, the researchers or Massey University.

Contact details:

Angela Macfarlane: angelamacfarlane@hotmail.com or 06 356 9099 x7179
Shane Harvey: s.t.harvey@massey.ac.nz or 06 356 9099 x7171
Mail to: Turitea Psychology Clinic, PN319
School of Psychology
Massey University
Private Bag 11 222
Palmerston North

Please feel free to contact the researcher if you have any questions about this study

This project has been evaluated by peer review and judged to be low risk. Consequently, it has not been reviewed by one of the University's Human Ethics Committees. The researchers named above are responsible for the ethical conduct of this research.If you have any concerns about the conduct of this research that you wish to raise with someone other than the researchers, please contact Professor Sylvia Rumball, Assistant to the Vice-Chancellor (Research Ethics), telephone 06 350 5249, email humanethics@massey.ac.nz.

APPENDIX F

INFORMATION SHEET: STUDY TWO - EXPERTS

MASSEY UNIVERSITY
COLLEGE OF HUMANITIES
AND SOCIAL SCIENCES
TE KURA PŪKENGA TANGATA

ORGANISING THE EMOTION REGULATION STRATEGIES CHILDREN USE

You are invited to take part in a study about the emotion regulation strategies children use. Your participation is entirely voluntary and if you do agree to take part, you are free to withdraw from the study at any time without having to provide a reason. The research is being undertaken by Angela Macfarlane, and is supervised by Massey Psychology Clinic Director, Dr. Shane Harvey and Honorary Research Affiliate, Dr. David Bimler. This study is towards a Doctor of Clinical Psychology at Massey University. If you have any queries or concerns regarding your rights as a participant in this study, you may wish to contact your professional organisation. If you have any cultural concerns or questions about the processes involved in this research, please contact Angela Macfarlane (contact details below).

Aim: A previous study has identified 103 individual strategies that children aged 6-12 often use to regulate their emotions. This study aims to find the underlying structure of the items, so they can be used to assess the kinds of patterns children are using to regulate their emotions. This study requires at least 30 participants who are over 18, who speak English as a first language and who have a postgraduate qualification in psychology. A similar study drawing on individuals without a postgraduate qualification in psychology will be undertaken and statistically compared against this study to check how valid our data is. Based on previous research, at least 30 individuals are required to take part in this study to generate enough data to provide a valid structure of the items. Participants have been selected through known associates of the researcher and supervisors.

What will happen: You will be given a deck of 103 cards, each with a short statement written on it describing a strategy a child might use to regulate emotion. You will be asked to organise these statements into groups based on your judgment of their "face value" similarity to each other. You will then be asked to identify opposite groups, sub-divide the groups and finally merge the groups. You will be given an anonymous recording sheet to record these sorts as you go. This procedure will take approximately one hour and will be carried out at a location convenient to you.

After the data from these tasks have been collected, it will be entered onto the computer and analysed by the researchers named above. Your identifying information on the consent form will be kept separate from your recording sheets and kept for contact purposes only (e.g. to send vouchers and summary of findings if requested). The recording sheets and consent forms will be kept in a locked cabinet in a secure facility for five years following the completion of this study. The data will be entered and stored on a password locked computer. After five years, any data not approved for archiving will be destroyed.

A $20 gift voucher (either motor trade association or movie voucher) will be posted to you as koha for your time, travel and efforts. At the same time, a results summary will be sent to you if you requested one. No material that could personally identify you will be used in any reports on this study. This study is expected to take up to 6 months. The data obtained from these tasks will be used in ongoing research investigating patterns of emotion regulation strategies deployed by children.

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Benefits, risks and safety: This study is part of a larger piece of research aimed at examining the emotion regulation strategies children use. Once this has been achieved, the items can be used in myriad ways, including assessing how children are coping (emotionally) after a major stressor in their lives. This research may help provide greater understanding of the emotional changes that occur in children in response to traumatic events, maltreatment or other stressors. It also has the potential to extend our understanding of the range of emotion regulation strategies children use. Furthermore, if adequately refined and defined, the inventory may become useful in assessing the consequences of trauma and assessing the outcomes from treatment.

No significant risks or safety issues have been identified as a part of this study, however, if you experience any negative effects or concerns as a result of participating in this study, please contact Angela Macfarlane as soon as possible as we may need to discontinue the study.

Your rights: You are under no obligation to accept this invitation to participate. If you do participate, you have the right to: decline to answer any particular question; withdraw from the study at any time; ask any questions about the study at any time during participation; provide information on the understanding that your name will not be used and; be given access to a summary of the project findings when it is concluded. You do not need to provide any reason if you choose to withdraw or decline to answer any question. We will do our utmost to ensure your privacy and confidentiality as a participant; however, we must inform you that there is always a small risk of an inadvertent breach of your privacy. Other than this, there are no known potential risks for harm or significant discomfort for you, the researchers or Massey University.

This project has been evaluated by peer review and judged to be low risk. Consequently, it has not been reviewed by one of the University's Human Ethics Committees. The researchers named above are responsible for the ethical conduct of this research.If you have any concerns about the conduct of this research that you wish to raise with someone other than the researchers, please contact Professor John O'Neill, Director (Research Ethics), telephone 06 350 5249, email humanethics@massey.ac.nz

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Please feel free to contact the researcher if you have any questions about this study

APPENDIX G

CONSENT FORM: STUDY TWO

MASSEY UNIVERSITY
COLLEGE OF HUMANITIES
AND SOCIAL SCIENCES
TE KURA PŪKENGA TANGATA

ORGANISING THE EMOTION REGULATION STRATEGIES CHILDREN USE

PARTICIPANT CONSENT FORM

This consent form will be held for a period of five (5) years

Please tick the boxes if you agree with the following statements:

I have read and understand the Information Sheet dated _____ and have had the details of this study explained to me.

I agree to participate in this study under the conditions set out in the Information Sheet.

I have had enough time to consider whether to take part in this study.

I have had an opportunity to discuss the study and my questions have been answered to my satisfaction.

I understand that I may ask further questions at any time.

I wish to have a summary of the final results mailed/emailed to me.

I understand that taking part in this study is voluntary and that I may withdraw from the study at any time.

I understand that my participation in this study is confidential and that no material that could identify me will be used in any reports on this study.

I agree to have my data placed in an official archive for use in future research.

I know who to contact if I have any questions or concerns about this study or if I have any negative effects as a result of participating in this study

I wish to have an interpreter

I hereby consent to take part in this study:

Signature: ..... **Date:** .....

Full Name (printed):

Voucher Preference (circle one): MTA Movie

Researcher:

Address you would like your voucher and/or result summary sent to:

Participant #_____

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APPENDIX H

PARTICIPANT INSTRUCTIONS: STUDY TWO

GOPA SORT TASK INSTRUCTIONS FOR PARTICIPANTS

(read aloud)

Thank you for volunteering to participate in this research study on children's emotion regulation. Have you had a chance to read through the information sheet? Do you have any questions or concerns?

Please bear in mind that participation in this study is entirely voluntary and you can ask questions or withdraw at any point.

In front of you there is a deck of 103 cards and a recording sheet {point}. Written on each card is a number and a short statement describing a strategy that a child might use to regulate their emotions {point}. Over the next hour, you will be sorting these cards into groups based on your judgment about each statement's face-value meaning. Try to avoid making judgments about whether you think the strategy is good or bad, useful or not useful. Base your decision solely on the face-value meaning of the statement. Please remember, there are no right or wrong answers.

I'll be asking you to sort these cards in four different steps

The first step is to group these statements based on their similarity to each other. In other words, group the cards by how they naturally go together. To do this, you will make between 8-16 different groups of similar items. You're free to rearrange, break or remake them until you reach an arrangement that you're happy with. Once you have made your groups, you will need to write the card numbers down in the table on your sheet {point to example on recording sheet}.

The next step is to look over the groups you've made and find the two most opposite groups of items to each other. Record those two by entering just one card number from each group into the space below {point to space}. Try and repeat this process for the next most opposite pairs, and again for set three.

The third step is to divide the first groups you made into smaller subgroups. Look at each of your groups from step one and organise them into smaller groups of similar items. Record these smaller groups in the space provided using brackets to show your new groupings {point to example on recording sheet}{give an example based on first letter of statement}.

Finally, I'd like you to look again at the groups you created during the very first step, forgetting all the other sorting that you've done since then, and find the two most similar groups of items. Record these two by entering just one card number in the space below. Only some groups will join up and many won't. Try and make at least two pairs {point to space}.

Does anyone have any questions?

The instructions are on the recording sheet, and if you have any questions along the way, don't hesitate to ask

APPENDIX I

Nine Items Added for Auxiliary Study

104. Becomes untidy or messy
105. Appearance becomes scruffy
106. Tasks and activities become disorganised
107. Appears relaxed or laid back
108. Reluctant to wash or bathe
109. Doesn't do what s/he is told
110. Has problems completing tasks
111. Avoids following rules
112. Behaviours become unpredictable

Thirty-five Item Set for Auxiliary Study

1. Gets restless
2. Writes about experiences
3. Gives her/himself a pep-talk
4. Becomes untidy or messy
5. Reads a book
6. Uses humour
7. Tidies or organises
8. Avoids reminders of emotional experiences
9. Throws things
10. Avoids people
11. Appearance becomes scruffy
12. Eager to please others
13. Lies or distorts the truth
14. Preoccupied or fixated on something
15. Plays with or touches own private parts
16. Talks to or plays with an imaginary friend
17. Talks about feelings with others
18. Tasks and activities become disorganised
19. Asks for a hug or a cuddle
20. Appears relaxed or laid back
21. Plays video games
22. Swears
23. Stares blankly
24. Uses a comfort item
25. Doesn't do what s/he is told
26. Picks at skin or other parts of the body
27. Blames self
28. Has problems completing tasks
29. Reluctant to wash or bathe
30. Shows off
31. Does exercise
32. Checks things over and over
33. Sticks to the rules
34. Behaviours become unpredictable
35. Avoids following rules

APPENDIX J

RECORDING SHEET: AUXILIARY STUDY

Participant #:_____

Date of birth:	Ethnicity:	Gender:	Occupation:

STEP ONE – GROUPING

Make between 5-10 different groups of similar items with no more than 8 items per group. A group may have a single item. Keep each group's items on the same line. Please write neatly and don't number the groups

Example: 4 98 16 32 8 54

STEP TWO – OPPOSITES

Look over the Phase-1 groups to find the most **different** pair of groups. Record these "opposites" by entering any one item number from each group in the spaces below. (Opposite set 1). Try to repeat the process for the next most different pair (Opposite set 2), and for Opposite set 3. Don't move items around between groups.

Opposite set 1:____/____

Opposite set 2: ____/____

STEP THREE – SUB-DIVIDING

Copy all numbers from Phase 1 onto the same line but this time reorder item numbers within brackets. Use brackets to show sub-groups of how the most similar items go together. A sub-group can have a single item within brackets

Example: (4 32 8) (98 54) (16)

STEP FOUR – ADDING

This time join together the most **similar** groups from Step One into supergroups. Physically place these similar Step One item groups together, and enter any one item number from both groups into the spaces below. Only some groups will join up and many will not. Try to make at least two pairs. If there are more than 3, continue making pairs

Similar set 1:____/____

Similar set 2: ____/____

APPENDIX K

INFORMATION SHEET: AUXILIARY STUDY

MASSEY UNIVERSITY
COLLEGE OF HUMANITIES
AND SOCIAL SCIENCES
TE KURA PŪKENGA TANGATA

ORGANISING THE EMOTION REGULATION STRATEGIES CHILDREN USE (SECOND SORT)

You are invited to take part in a study about the emotion regulation strategies children use. Your participation is entirely voluntary and if you do agree to take part, you are free to withdraw from the study at any time without having to provide a reason. The research is being undertaken by Angela Macfarlane, and is supervised by Massey Psychology Clinic Director, Dr. Shane Harvey and Honorary Research Affiliate, Dr. David Bimler. This study is towards a Doctor of Clinical Psychology at Massey University. If you have any queries or concerns regarding your rights as a participant in this study, you may wish to contact your professional organisation. If you have any cultural concerns or questions about the processes involved in this research, please contact Angela Macfarlane (contact details below).

Aim: A previous study has identified 103 individual strategies that children aged 6-12 often use to regulate their emotions. Another study has organised the items, but has found a small gap in its underlying structure. This means there is a conceptual area missing. Consequently, I have developed a small number of new items, but these need to be organised in relation to the old ones. This follow-up study aims to organise the nine new items within the original map by sorting them with some of the original items. This study requires at least 30 participants who are over 18, who speak English as a first language. Based on previous research, at least 30 individuals are required to take part in this study to generate enough data to provide a valid structure of the items. Participants have been selected through known associates of the researcher and supervisors.

What will happen: You will be given a deck of 35 cards, each with a short statement written on it describing a strategy a child might use to regulate emotion. You will be asked to organise these statements into groups based on your judgment of their "face value" similarity to each other. You will then be asked to identify opposite groups, sub-divide the groups and finally merge the groups. You will be given an anonymous recording sheet to record these sorts as you go. This procedure will take approximately 20minutes and will be carried out at a location convenient to you.

After the data from these tasks have been collected, it will be entered onto the computer and analysed by the researchers named above. Your identifying information on the consent form will be kept separate from your recording sheets and kept for contact purposes only (e.g. to send vouchers and summary of findings if requested). The recording sheets and consent forms will be kept in a locked cabinet in a secure facility for five years following the completion of this study. The data will be entered and stored on a password locked computer. After five years, any data not approved for archiving will be destroyed.

No material that could personally identify you will be used in any reports on this study. This study is expected to take up to 6 months. The data obtained from these tasks will be used in ongoing research investigating patterns of emotion regulation strategies deployed by children.

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Private Bag 11222, Palmerston North 4442, New Zealand T +64 6 356 9099 extn 2040 F +64 6 350 5673 http://psychology.massey.ac

Benefits, risks and safety: This study is part of a larger piece of research aimed at examining the emotion regulation strategies children use. Once this has been achieved, the items can be used in myriad ways, including assessing how children are coping (emotionally) after a major stressor in their lives. This research may help provide greater understanding of the emotional changes that occur in children in response to traumatic events, maltreatment or other stressors. It also has the potential to extend our understanding of the range of emotion regulation strategies children use. Furthermore, if adequately refined and defined, the inventory may become useful in assessing the consequences of trauma and assessing the outcomes from treatment.

No significant risks or safety issues have been identified as a part of this study, however, if you experience any negative effects or concerns as a result of participating in this study, please contact Angela Macfarlane as soon as possible as we may need to discontinue the study.

Your rights: You are under no obligation to accept this invitation to participate. If you do participate, you have the right to: decline to answer any particular question; withdraw from the study at any time; ask any questions about the study at any time during participation; provide information on the understanding that your name will not be used and; be given access to a summary of the project findings when it is concluded. You do not need to provide any reason if you choose to withdraw or decline to answer any question. We will do our utmost to ensure your privacy and confidentiality as a participant; however, we must inform you that there is always a small risk of an inadvertent breach of your privacy. Other than this, there are no known potential risks for harm or significant discomfort for you, the researchers or Massey University.

This project has been evaluated by peer review and judged to be low risk. Consequently, it has not been reviewed by one of the University's Human Ethics Committees. The researchers named above are responsible for the ethical conduct of this research.If you have any concerns about the conduct of this research that you wish to raise with someone other than the researchers, please contact Professor John O'Neill, Director (Research Ethics), telephone 06 350 5249, email humanethics@massey.ac.nz

Contact details:

Angela Macfarlane: angelamacfarlane@hotmail.com or 06 356 9099 x7179
Shane Harvey: s.t.harvey@massey.ac.nz or 06 356 9099 x7171
Mail to: Turitea Psychology Clinic, PN319
School of Psychology
Massey University
Private Bag 11 222
Palmerston North

Please feel free to contact the researcher if you have any questions about this study

APPENDIX L

CONSENT FORM: AUXILIARY STUDY

MASSEY UNIVERSITY
COLLEGE OF HUMANITIES
AND SOCIAL SCIENCES
TE KURA PŪKENGA TANGATA

ORGANISING THE EMOTION REGULATION STRATEGIES CHILDREN USE

(SECOND SORT)

PARTICIPANT CONSENT FORM

This consent form will be held for a period of five (5) years

Please tick the boxes if you agree with the following statements:

I have read and understand the Information Sheet dated _____ and have had the details of this study explained to me.

I agree to participate in this study under the conditions set out in the Information Sheet.

I have had enough time to consider whether to take part in this study.

I have had an opportunity to discuss the study and my questions have been answered to my satisfaction.

I understand that I may ask further questions at any time.

I wish to have a summary of the final results mailed/emailed to me.

I understand that taking part in this study is voluntary and that I may withdraw from the study at any time.

I understand that my participation in this study is confidential and that no material that could identify me will be used in any reports on this study.

I agree to have my data placed in an official archive for use in future research.

I know who to contact if I have any questions or concerns about this study or if I have any negative effects as a result of participating in this study

I hereby consent to take part in this study:

Signature: ..... **Date:** .....

Full Name (printed):

Te Kunenga ki Pūrehuroa

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APPENDIX M

Multidimensional Scaling Dimension Poles and Key Items

Dimension 1+ Independent/Rebel

- Gets into fights
- Says mean things to other people
- Swears
- Dominates play with others

Dimension 1- Dependent/Self-Soothe

- Uses a comfort item
- Talks to or plays with an imaginary friend
- Asks for verbal reassurance
- Does what s/he is told

Dimension 2+ Disconnect

- Avoids reminders of emotional experiences
- Avoids people
- Temporarily leaves a situation
- Pretends to be somewhere else

Dimension 2- Connect

- Eager to please others
- Does what s/he is told
- Tries to sleep with main caregiver
- Shows affection to unfamiliar people

Dimension 3+ Focus In

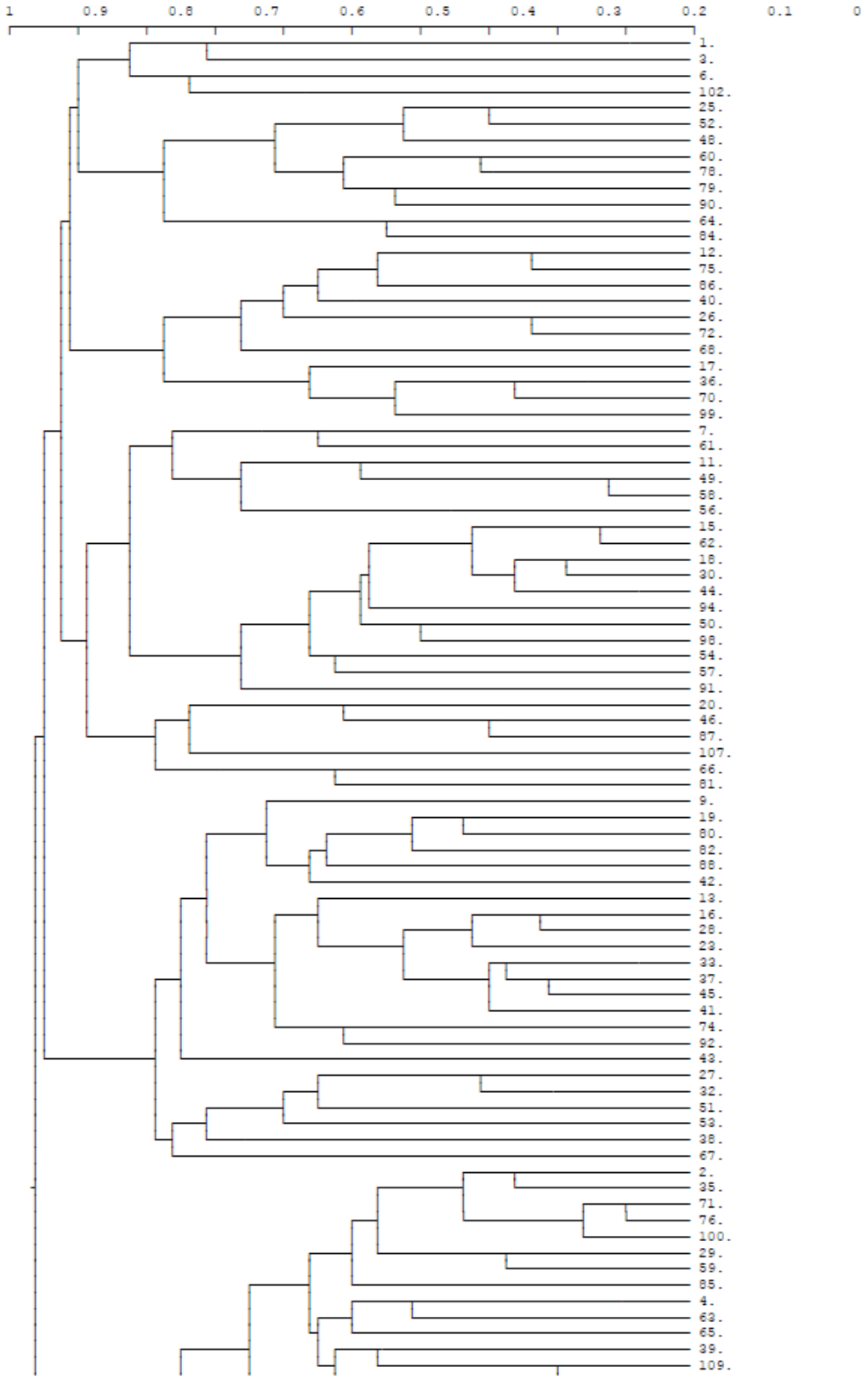
- Picks at skin
- Feels sick
- Chews fingernails
- Plays with or touches own private parts
- Preoccupied or fixated on something

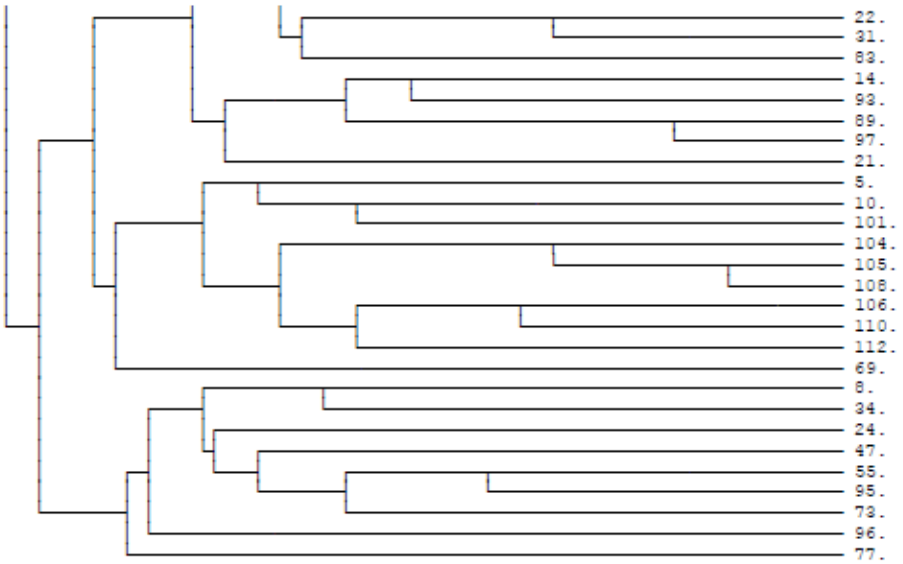
Dimension 3- Focus Out

- Does artwork
- Appears relaxed or laidback
- Reads a book
- Plays with peers

APPENDIX N

MEAN LINKAGE DENDROGRAM FROM 112-ITEM GOPA




22.
31.
83.
14.
93.
89.
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101.
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106.
110.
112.
69.
8.
34.
24.
47.
55.
95.
73.
96.
77.

APPENDIX O

Multidimensional Map Cluster Headings and Items

a. Active
   - Does exercise
   - Plays with peers
   - Gets involved in a favourite activity (e.g. a hobby)

b. Affection seeking
   - Shows affection to unfamiliar people
   - Asks for a hug or cuddle

c. Attacking
   - Gets into fights
   - Says mean things to other people
   - Physically hurts smaller children or animals

d. Avoidance
   - Avoids physical contact
   - Avoids reminders of emotional experiences
   - Avoids people
   - Hides

e. Cheerful
   - Laughs or giggles
   - Uses humour

f. Compliance
   - Does what s/he is told
   - Eager to please others

g. Disobedient
   - Swears
   - Avoids following rules
   - Yells or screams
   - Blames others
   - Breaks rules
   - Lies or distorts the truth

h. Disorganised
   - Becomes untidy or messy
   - Tasks and activities become disorganised
   - Has problems completing tasks

i. Displaced Control
   - Repeats certain routines

- Repetitively plays out same stories during play
- Sticks to structure or routine
- Cleans

j. Dissociation
- Stares blankly
- Maintains an expressionless face
- Freezes
- Seems unaware of surroundings

k. Distraction
- Reads a book
- Does artwork
- Plays video games

l. Dominates
- Acts staunch or tough
- Dominates play with others

m. Excess/Dramatic
- Exaggerates reaction
- Makes more noise than required
- Shows off

n. Solo Play
- Plays or spends time alone
- Talks to or plays with an imaginary friend

o. Self Soothe
- Sucks thumb
- Eats

p. Somatic
- Picks at skin or other parts of the body
- Intentionally hurts self
- Feels sick
- Chews fingernails

q. Verbalise Emotion
- Talks with others about experiences
- Writes about experiences in a diary

APPENDIX P

INFORMATION SHEET: STUDY THREE: PARENT VERSION

MASSEY UNIVERSITY
COLLEGE OF HUMANITIES
AND SOCIAL SCIENCES
TE KURA PŪKENGA TANGATA

CHILDREN'S EMOTION REGULATION IN RELATION TO PARENTING PRACTICES

Emotion regulation strategies are the things we do to manage the way we feel. In some situations these things can be helpful (e.g. laughing at a friend's joke), but in others they can be unhelpful (e.g. laughing loudly at a funeral).

My name is Angela Macfarlane and I am investigating the different strategies children use to manage their emotions and how this might be related to the different approaches parents use. For this study, I'd like parents or caregivers of 6-12 year olds to (anonymously) describe how their child manages his or her emotions and the different things they do to parent their child. The results will tell us if or how a child's emotion regulation is related to parenting.

The research is supervised by Dr Shane Harvey; Jan Dickson; Associate Professor John Spicer; Dr David Bimler. This study is towards a Doctor of Clinical Psychology at Massey University. If you have any cultural concerns or questions about the processes involved in this research, please contact Angela Macfarlane on the details provided below.

WHO CAN PARTICIPATE: We need 100 parents or caregivers of 6-12 year old. To be eligible, you will need to have been the primary caregiver of a 6-12 year old child since the child was born, be over the age of 25 and speak English fluently. Volunteers have been recruited for this study through media releases.

WHAT WILL HAPPEN: First, we would like you to complete a quick screening questionnaire with Angela. This can be done in person or over the phone. The questionnaire will take approximately 5 minutes and will ask you to provide some general details about yourself, your household and your child/dependant. At no point will we ask for or record your child's name. Your contact details will then be separated from your general details to ensure any further answers are anonymous.

You will then be provided with a set of cards, a layout page and some envelopes to put your finished sort into. Each of the 85 cards will have a number on it and a short statement describing a way a child might manage their emotions. You will be asked to sort these cards into piles based on how much each statement applies to your child. The card sorting task will take approximately 30 minutes and can be carried out at a location convenient to you. After this, you will be shown a questionnaire asking you about how your child has been parented. This questionnaire will take less than 10 minutes.

After all the data has been collected and the results analysed, you will be sent a summary of the research findings and some resources describing some useful parenting skills and strategies. This study is expected to take up to 15 months. When you receive the results feel free to contact the researcher if you want to discuss them further.

Te Kunenga ki Pūrehuroa

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BENEFITS, RISKS AND SAFETY: This study is part of a larger study aimed at examining children's emotion regulation strategies. In the future, the cards might be used to assess how children are managing emotions, or to help improve understandings of the emotional changes that happen in children after stressful events. It also may help broaden our knowledge of the range of emotion regulation strategies children use. Finally, it may help provide useful education to parents/caregivers looking for useful strategies to add to their parenting skill-set

No significant risks or safety issues have been identified as a part of this study, however, if you experience any negative effects or concerns as a result of participating, please contact Angela Macfarlane as soon as possible

YOUR RIGHTS: After analysis is finished, the data will be stored in a locked and alarmed facility at Massey University for 5 years after the research is finished. After this, any raw data not approved for archiving will be destroyed. You are under no obligation to accept this invitation to participate. If you do participate, you have the right to: decline to answer any particular question; withdraw from the study at any point up until analysis starts; ask any questions about the study at any time during participation; provide information on the understanding that your name will not be used and; be given access to a summary of the project findings when it is concluded. You do not need to provide any reason if you choose to withdraw or decline to answer any question. No material that could personally identify you will be used in any reports on this study. Your responses on the card sort and parenting questionnaire are completely anonymous.

This project has been reviewed and approved by the Massey University Human Ethics Committee: Southern B, Application 10/70 If you have any concerns about the conduct of this research, please contact Dr Nathan Matthews, Chair, Massey University Human Ethics Committee: Southern B, telephone 06 350 5799 x 8729, email humanethicsouthb@massey.ac.nz

CONTACT DETAILS:

Angela Macfarlane:	*a.macfarlane@massey.ac.nz* or 06 356 9099 x81744
Shane Harvey:	*s.t.harvey@massey.ac.nz* or 06 356 9099 x81742
Mail to:	*Turitea Psychology Clinic, PN319* *Massey University* *Private Bag 11 222* *Palmerston North*

APPENDIX Q

INFORMATION SHEET: STUDY THREE – CHILD VERSION

Parenting and How Kids Deal with Feelings

My name is Angela Macfarlane and I go to Massey University. I am doing a study about the different ways mums and dads raise their kids and whether this is related to how kids deal with their feelings.

Your mum or dad is thinking about taking part in my study and, if they do, I'll be asking them a few questions about you. I'll ask your mum or dad about:

- how old you are
- your race
- whether you're a girl or a boy
- the different things they see you do when you're dealing with feelings
- the different things they do to raise you

There will be at least 100 mums and dads doing this study. I'll add up all their answers and then have a look at the results and see if there is any relationship between the way kids deal with feelings and the types of things parents do.

If you want any more info or have any questions, you can either talk to your mum or dad or you can ask them to contact me for you.

Thanks,

Angela

APPENDIX R

CONSENT FORM: STUDY THREE

MASSEY UNIVERSITY
COLLEGE OF HUMANITIES
AND SOCIAL SCIENCES
TE KURA PŪKENGA TANGATA

MAPPING CHILDREN'S PATTERNS OF EMOTION REGULATION STRATEGIES

PARTICIPANT CONSENT FORM – INDIVIDUAL

This consent form will be held for a period of five (5) years

Please tick the boxes if you agree with the following statements:

I have read the Information Sheet and have had the details of the study explained to me. My questions have been answered to my satisfaction, and I understand that I may ask further questions at any time.

I wish to have data placed in the Massey University School of Psychology Archive Facility for use in future related research.

I wish to have a summary of the final results mailed/emailed to me.

I understand that taking part in this study is voluntary and that I may withdraw from the study at any time.

I understand that my participation in this study is confidential and that no material that could identify me or my child will be used in any reports on this or any future study.

I agree to participate in this study under the conditions set out in the Information Sheet.

Signature: ..... **Date:** .....

Full Name (printed):

Please return this document with your cards and the parenting questionnaire in the return prepaid envelope enclosed. This page will be separated from your card task and questionnaire when received by the researcher.

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APPENDIX S

INSTRUCTIONS FOR THE CARD SORTING TASK AND THE PARENTING QUESTIONNAIRE

Enclosed in the envelope is a deck of 85 cards. Each card contains a statement that describes a strategy a child might use to manage his or her emotions. We want you to make a judgement about which strategies apply to your child (the child you completed the phone questionnaire about). Please remember, there are no right or wrong answers. The card sorting task and the questionnaire at the end should take you 30-40 minutes.

Behind this page is another instruction sheet. The sorting of the cards should be made directly onto the boxes indicated on the instruction sheet.

1. Follow the instructions by sorting all cards into three piles – "more noticeable" for my child, "not sure" if this applies to my child, and "less noticeable" for my child.
2. Next, pick up all cards in the "more noticeable" pile and sort them into two further piles of "more clearly seen" and "less clearly seen"
3. Now pick up all the cards in the "less noticeable" pile and sort them further into piles of "occasionally seen" and "rarely seen"
4. Now pick up the "not sure" pile and review them to see if you would like to shift any of them into the new piles you have made
5. Now you will be asked to subdivide these piles for the last time – pick up the "more clearly seen" pile and sort them into two piles of "very clearly seen" and "very clearly seen, but applies less"
6. Next, pick up the cards in the "less clearly seen" pile and divide these into "often seen" and "often seen, but applies less"
7. Next, pick up the cards you placed in the "occasionally seen" pile and sort them into piles of "occasionally seen, but applies more" and "occasionally seen, but applies less"
8. Now pick up the "rarely seen" pile and sort these into two piles of "rarely seen" and "very rarely seen"
9. Finally, take one last look through your "not sure" pile to see if you would like to move any to one of the other eight piles you have created.

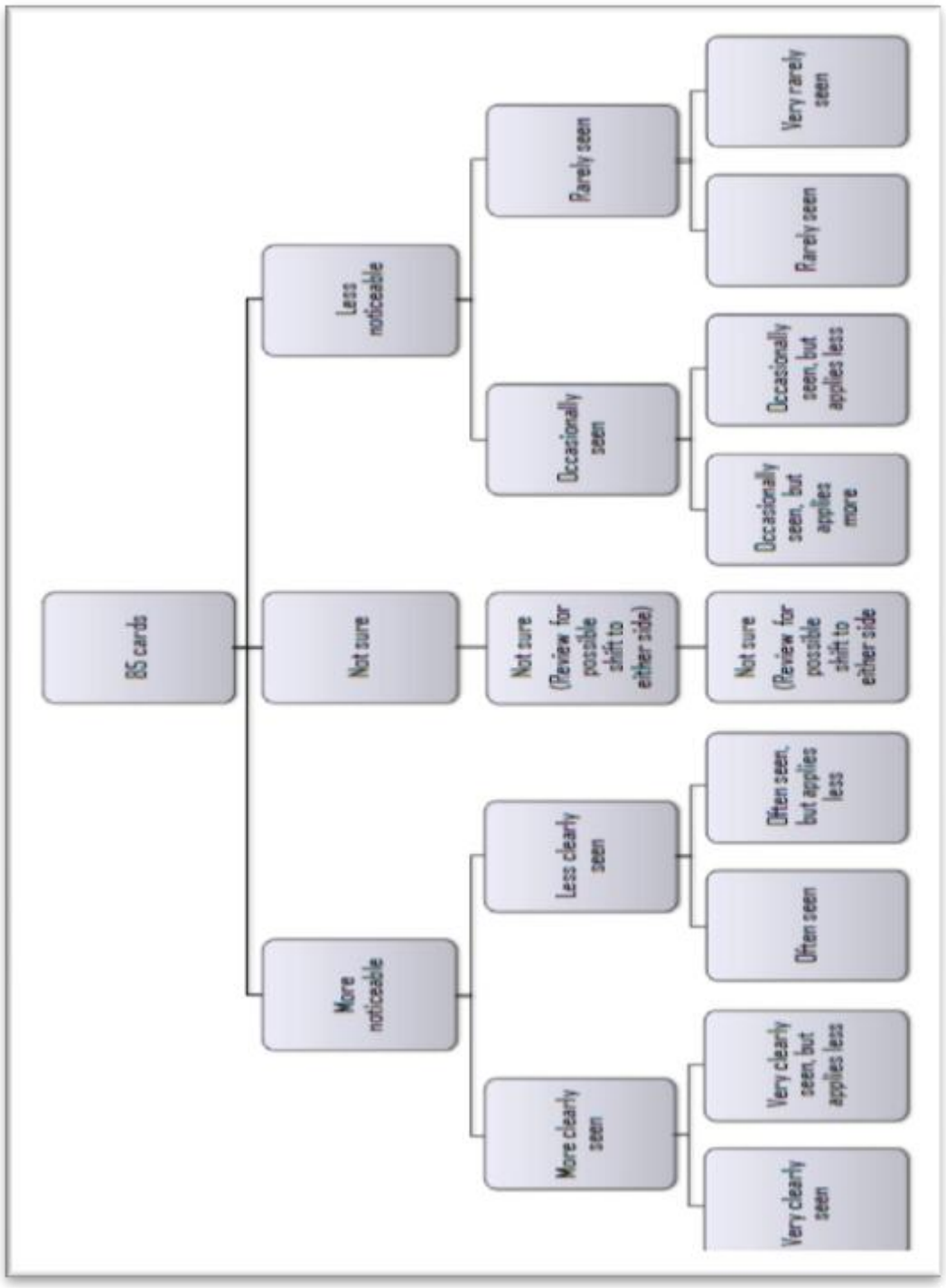
Please place each of the final nine piles in the marked envelopes and seal them.

Lastly, please complete the parenting survey at the back and then place the nine envelopes, your consent form and the parenting survey into the large, prepaid envelope, seal and place in a post box at your convenience. If you have any difficulty with this task, please feel free to contact me by email a.macfarlane@massey.ac.nz or phone (06) 356 9099 x 81744.

Thank you very much for your participation.

APPENDIX T

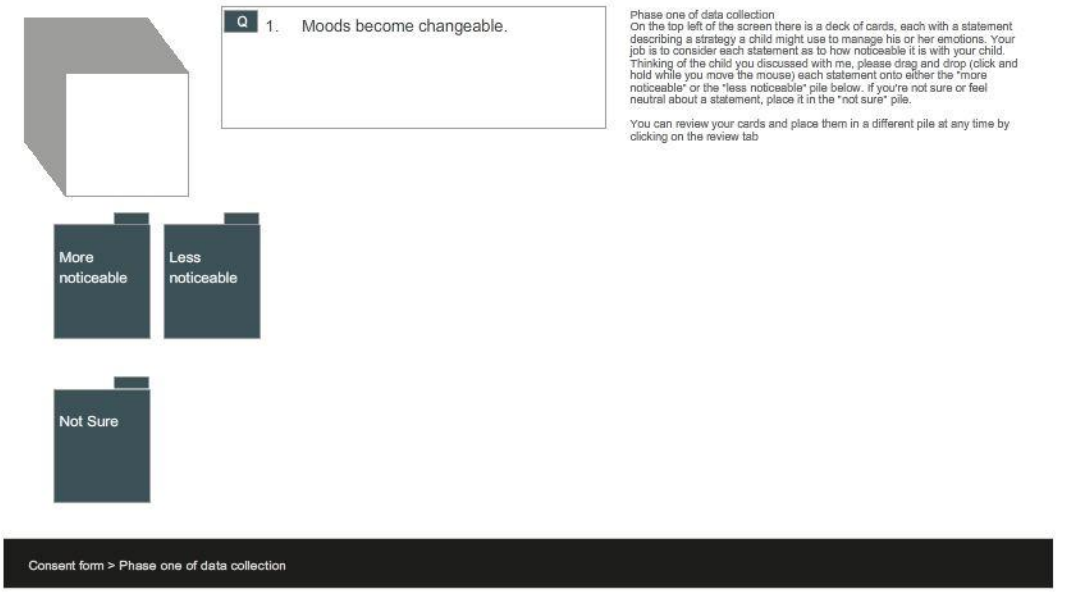
HAND SORT TASK INSTRUCTIONS LAYOUT PAGE FOR MOSS



APPENDIX U

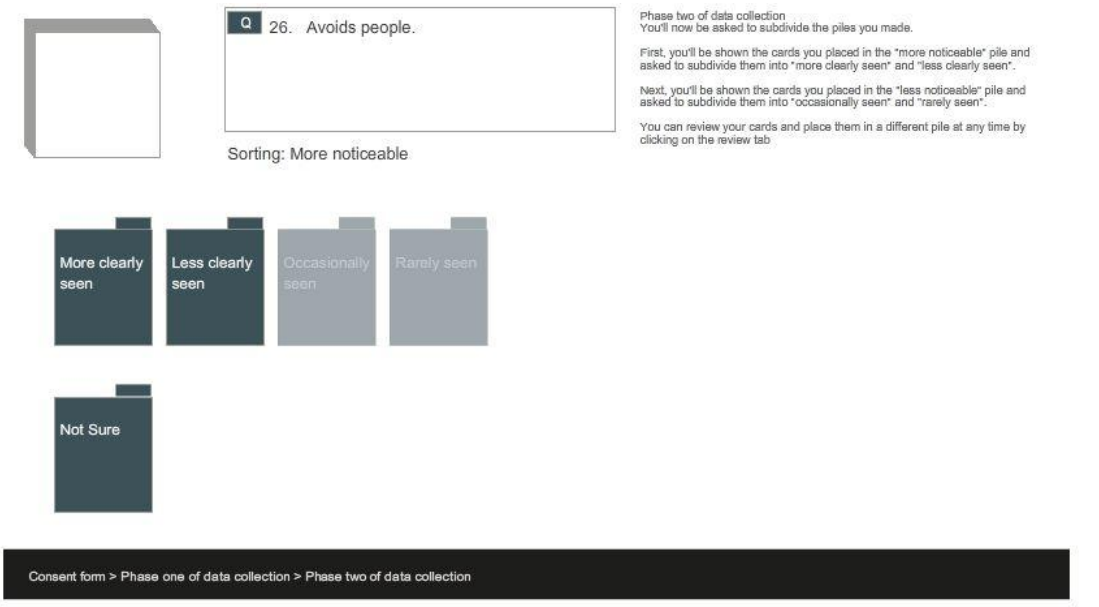
SCREEN SHOTS OF ONLINE MOSS CARD SORT

First Sort



If you are experiencing any distress as a result of completing this task, please either contact the researcher on the details provided, or call Parentline on 0800 4 FAMILY (0800 432 6459)

Second Sort

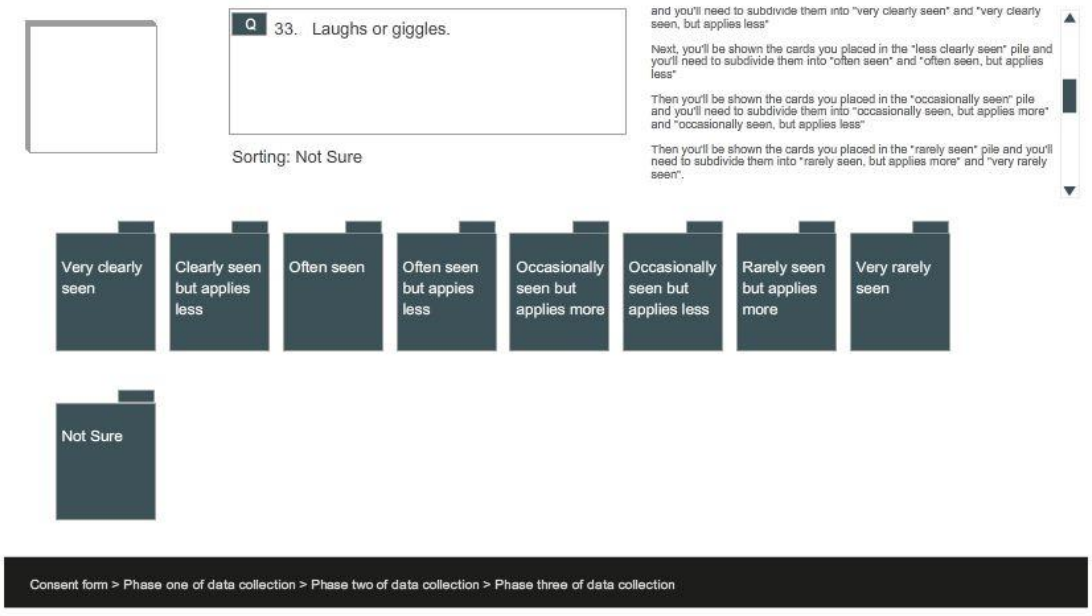


If you are experiencing any distress as a result of completing this task, please either contact the researcher on the details provided, or call Parentline on 0800 4 FAMILY (0800 432 6459)

Third Sort

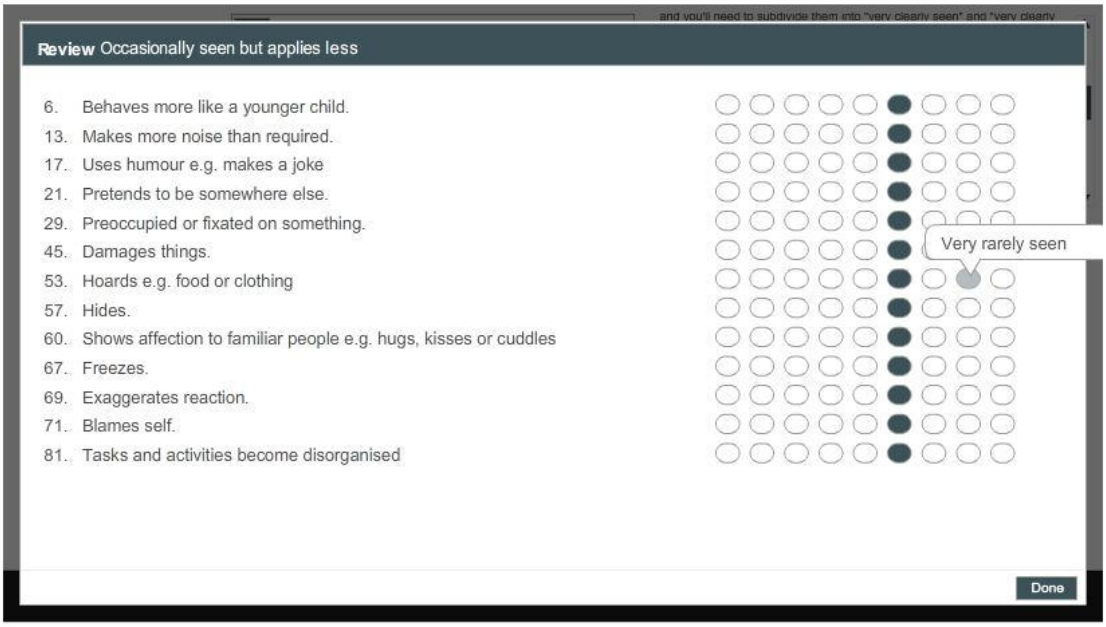
If you are experiencing any distress as a result of completing this task, please either contact the researcher on the details provided, or call Parentline on 0800 4 FAMILY (0800 432 6459)

Not Sure Pile Review



If you are experiencing any distress as a result of completing this task, please either contact the researcher on the details provided, or call Parentline on 0800 4 FAMILY (0800 432 6459)

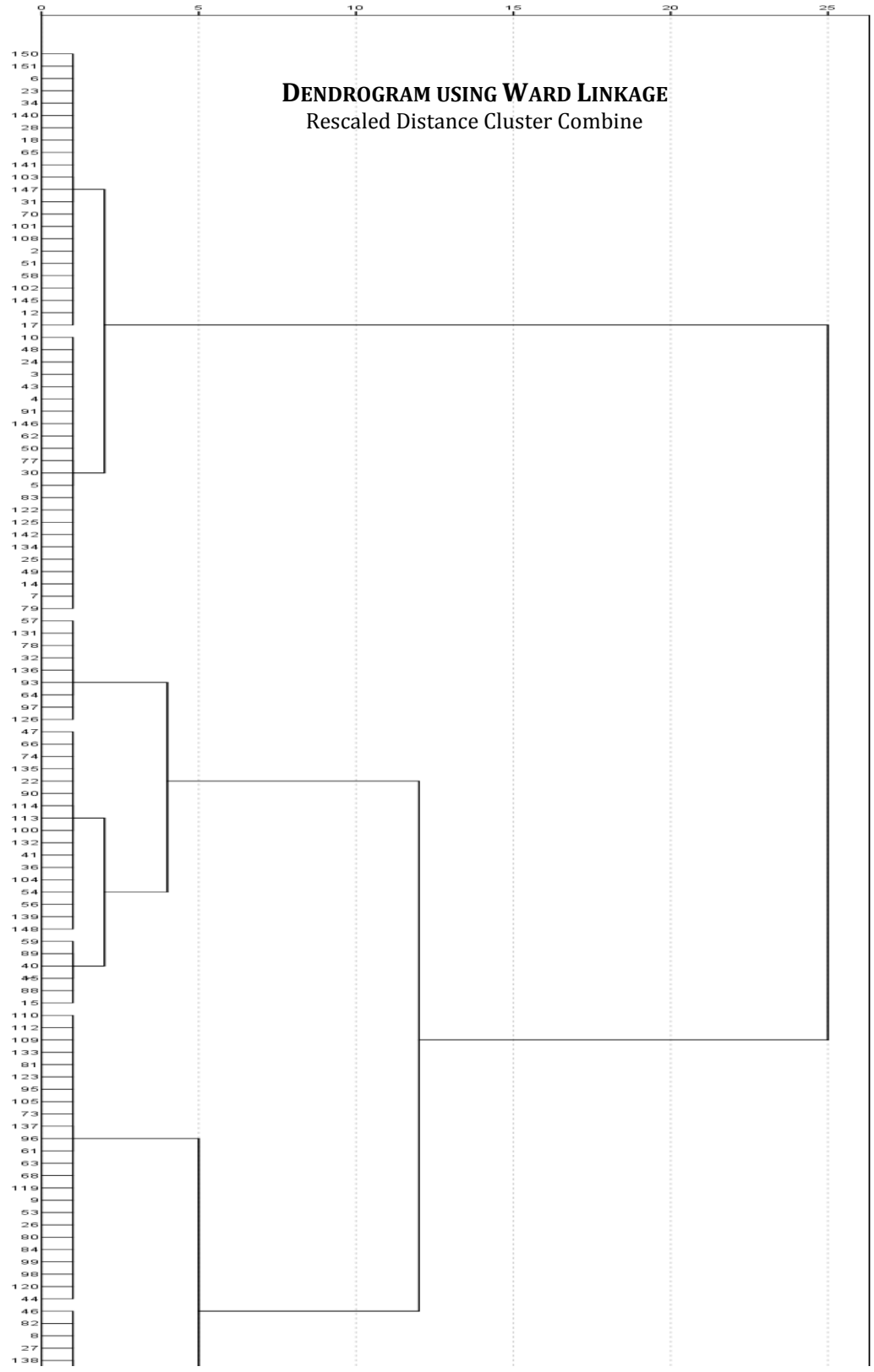
Review Pop-Up



you are experiencing any distress as a result of completing this task, please either contact the researcher on the details provided, or call Parentline on 0800 4 FAMILY (0800 432 645

APPENDIX V

DENDROGRAM FROM 151-CASE MOSS SORT



WARD'S AGGLOMERATION SCHEDULE

	Cluster Combined			Stage Cluster First Appears		
Stage	Cluster 1	Cluster 2	Coefficients	Cluster 1	Cluster 2	Next Stage
1	150	151	.002	0	0	98
2	3	43	.004	0	0	19
3	34	140	.008	0	0	16
4	10	48	.013	0	0	18
5	68	119	.020	0	0	99
6	91	146	.026	0	0	23
7	100	132	.033	0	0	22
8	71	121	.040	0	0	73
9	5	83	.047	0	0	102
10	122	125	.056	0	0	62
11	52	85	.066	0	0	80
12	25	49	.076	0	0	78
13	35	143	.086	0	0	80
14	110	112	.096	0	0	70
15	115	130	.106	0	0	36
16	28	34	.116	0	3	46
17	26	80	.128	0	0	48
18	10	24	.140	4	0	83
19	3	4	.153	2	0	83
20	54	56	.166	0	0	85
21	81	123	.178	0	0	40

	Cluster Combined			Stage Cluster First Appears		
Stage	Cluster 1	Cluster 2	Coefficients	Cluster 1	Cluster 2	Next Stage
22	41	100	.192	0	7	100
23	62	91	.205	0	6	90
24	50	77	.219	0	0	42
25	109	133	.233	0	0	70
26	29	60	.247	0	0	49
27	101	108	.262	0	0	121
28	87	144	.278	0	0	66
29	103	147	.294	0	0	47
30	6	23	.311	0	0	71
31	20	106	.328	0	0	64
32	92	128	.346	0	0	52
33	8	27	.364	0	0	92
34	36	104	.382	0	0	100
35	22	90	.401	0	0	63
36	42	115	.420	0	15	55
37	102	145	.439	0	0	74
38	2	51	.458	0	0	68
39	98	120	.477	0	0	60
40	81	95	.497	21	0	69
41	13	16	.517	0	0	61
42	30	50	.537	0	24	90
43	72	118	.558	0	0	65
44	46	82	.580	0	0	111
45	84	99	.603	0	0	48
46	18	28	.628	0	16	71
47	31	103	.652	0	29	76
48	26	84	.677	17	45	118
49	21	29	.702	0	26	64
50	32	136	.727	0	0	93
51	12	17	.752	0	0	74
52	92	129	.777	32	0	115
53	33	55	.803	0	0	89
54	57	131	.829	0	0	95
55	42	69	.857	36	0	124
56	65	141	.885	0	0	105
57	37	127	.914	0	0	97
58	73	137	.943	0	0	96
59	61	63	.973	0	0	113
60	44	98	1.003	0	39	118
61	13	111	1.034	41	0	87
62	122	142	1.066	10	0	88
63	22	114	1.099	35	0	94
64	20	21	1.133	31	49	84
65	72	76	1.167	43	0	115
66	87	107	1.202	28	0	79
67	11	75	1.238	0	0	109
68	2	58	1.275	38	0	106

	Cluster Combined			Stage Cluster First Appears		
Stage	Cluster 1	Cluster 2	Coefficients	Cluster 1	Cluster 2	Next Stage
69	81	105	1.313	40	0	110
70	109	110	1.351	25	14	125
71	6	18	1.389	30	46	98
72	74	135	1.428	0	0	112
73	39	71	1.468	0	8	123
74	12	102	1.507	51	37	106
75	86	149	1.547	0	0	101
76	31	70	1.588	47	0	105
77	9	53	1.628	0	0	99
78	14	25	1.669	0	12	107
79	87	94	1.711	66	0	97
80	35	52	1.753	13	11	91
81	59	89	1.795	0	0	142
82	7	79	1.837	0	0	107
83	3	10	1.879	19	18	108
84	20	67	1.922	64	0	126
85	54	139	1.965	20	0	116
86	19	117	2.009	0	0	120
87	13	124	2.054	61	0	124
88	122	134	2.098	62	0	102
89	33	116	2.144	53	0	135
90	30	62	2.191	42	23	108
91	35	38	2.239	80	0	131
92	8	138	2.288	33	0	111
93	32	93	2.338	50	0	119
94	22	113	2.390	63	0	112
95	57	78	2.442	54	0	133
96	73	96	2.495	58	0	110
97	37	87	2.555	57	79	109
98	6	150	2.618	71	1	130
99	9	68	2.681	77	5	113
100	36	41	2.748	34	22	129
101	1	86	2.817	0	75	126
102	5	122	2.887	9	88	128
103	47	66	2.957	0	0	122
104	40	45	3.029	0	0	117
105	31	65	3.108	76	56	130
106	2	12	3.189	68	74	121
107	7	14	3.275	82	78	128
108	3	30	3.362	83	90	137
109	11	37	3.451	67	97	123
110	73	81	3.540	96	69	125
111	8	46	3.629	92	44	134
112	22	74	3.722	94	72	122
113	9	61	3.818	99	59	127
114	64	97	3.919	0	0	119
115	72	92	4.022	65	52	120

	Cluster Combined			Stage Cluster First Appears		
Stage	Cluster 1	Cluster 2	Coefficients	Cluster 1	Cluster 2	Next Stage
116	54	148	4.125	85	0	129
117	40	88	4.233	104	0	132
118	26	44	4.343	48	60	127
119	32	64	4.453	93	114	133
120	19	72	4.571	86	115	141
121	2	101	4.702	106	27	136
122	22	47	4.835	112	103	139
123	11	39	4.970	109	73	131
124	13	42	5.106	87	55	135
125	73	109	5.254	110	70	140
126	1	20	5.415	101	84	134
127	9	26	5.578	113	118	140
128	5	7	5.744	102	107	137
129	36	54	5.915	100	116	139
130	6	31	6.103	98	105	136
131	11	35	6.295	123	91	141
132	15	40	6.529	0	117	142
133	32	57	6.781	119	95	138
134	1	8	7.035	126	111	145
135	13	33	7.340	124	89	143
136	2	6	7.661	121	130	144
137	3	5	8.053	108	128	144
138	32	126	8.460	133	0	147
139	22	36	8.919	122	129	146
140	9	73	9.473	127	125	148
141	11	19	10.046	131	120	143
142	15	59	10.634	132	81	146
143	11	13	11.529	141	135	145
144	2	3	12.519	136	137	150
145	1	11	13.682	134	143	148
146	15	22	14.994	142	139	147
147	15	32	17.409	146	138	149
148	1	9	20.887	145	140	149
149	1	15	29.262	148	147	150
150	1	2	47.624	149	144	0

APPENDIX W

SUPPLEMENTARY RESEARCH CHAPTER

CHILDREN'S EMOTION REGULATION WITHIN A NOMOLOGICAL NETWORK OF RELATED VARIABLES

"Childraising is a technical task, judged by the effects it achieves. Parents, like other producers, are judged by the quality of their products"

(C. C. Harris, 1983, p. 241)

To begin the groundwork for validating the ChERI items, domains and Profiles, a final set of analyses and comparisons were carried out examining the results within a framework of relevant variables. These variables included demographic factors and parenting styles.

Although research into parenting practices and how they relate to children's emotion regulation is not an untouched area, there are a number of issues with the way the research has approached the relationship between these concepts. Firstly, current literature tends to focus on the management of negative emotions and fails to clearly examine how children manage the full gamut of emotions. Secondly, a large part of the research literature investigating parenting practices as they relate to children's emotion regulation is aimed at infancy and preschool children. Bariola et al. noted a "dearth of research" on the relationship between children's emotion regulation and parental influences in the post-preschool age groups (2011, p. 206). Finally, rather than examine parenting practices and styles in general, much of the current literature focuses on emotion-related parenting practices and styles (Morris, Silk, Steinberg, Myers, & Robinson, 2007). In particular, how the parents parent around emotions, rather than how the parent simply *parents*. This can be loosely defined as "all the interactions between parents and their children" (Sears, Maccoby, & Levin, 1957, p. 457).

Parenting Literature Review

Since Freud first explained his theories of development, commentators from a range of disciplines have worked to expand on the importance of good parenting as the foundation to individual and (consequently) social well-being. As a result, parenting was recognised as affecting a child's emotional and interpersonal processes early on in parenting research (Darling & Steinberg, 1993; Sears et al., 1957). Accordingly, parents seem genuinely under considerable pressure to perform well in today's climate. Especially when more recent research suggests that "good enough" parenting is no longer good enough (Price-Robertson, Smart, & Bromfield, 2010).

Models of Parenting and Parenting Styles

In studying the construct of parenting, theorists have attempted to break it down into chunks of key parenting styles and create models of parenting. Parenting style may be conceptualised as a collection of attitudes a parent holds towards the child and these attitudes impact on the expression of the parent's parenting behaviours (Darling & Steinberg, 1993). Importantly, these styles alter how successfully the parent socialises the child by influencing the effectiveness of the parenting practices. Darling and Steinberg noted that, historically, there are important similarities between the parenting style dimensions proposed by several theoretically diverse theorists, including Symonds, Baldwin, Schaefer and Becker. These dimensions tend to be situated around a continuum of warmth/hostility and one of autonomy/control.

Social learning theory is a significant model of parenting. In particular, it proposes that parents model, evoke and selectively reinforce their children's social behaviour (Bandura, 1977; Domitrovich & Bierman, 2001). This in turn impacts on all social relations in which the child engages. Additionally, parenting behaviours can impact on child social adjustment, with warm supportive parenting shown to be associated with good social adjustment and parental hostility associated with poor social adjustment (Domitrovich & Bierman, 2001). Nonetheless, the researchers here acknowledge that their correlational results may have other

influences, such as child temperament eliciting particular parenting behaviours, or representational models of relationships (e.g. attachment) impacting on social adjustment.

The process model of parenting proposed by Belsky (1984) outlines how parenting practices are determined by three general domains: the personal psychological resources of the parents, the characteristics of the child, and the context (i.e. sources of stress and support) (Belsky, 2005). This model argues that sources of intra-parent variation tend to come from variation in contextual factors. However, the most important factor in determining the level of stress in the parent-child relationship is that of personal psychological resources of the parent. Nonetheless, despite the impact of contextual factors, which can significantly impact on parenting behaviours, parenting style tends to be fairly stable over time (McNally, Eisenberg, & Harris, 1991; Roberts, Block, & Block, 1984). This has been demonstrated in spite of the fact that parenting approaches change over time due to maturation of the child (for example, using "time out" as an approach to discipline or showing physical affection are likely to drop off as the child matures).

Baumrind's Model

One of the most significant approaches to understanding parenting styles and their impact on child outcomes was developed by Diana Baumrind (1966; Keller, 2008). This came at a time when two polarised parenting styles were pitted against each other: a conservative style and a liberal style (Baumrind, 1996). Although she proposed several types of parenting modes, Baumrind's three most significant models or prototypes of parenting were: permissive, authoritarian and authoritative (Baumrind, 1971; Robinson, Mandleco, Olsen, & Hart, 1995). The permissive parent tends to be warm and encouraging of emotional expression, yet places few demands or restrictions on the child. The authoritarian parent expects the child to adhere to a rigid set of parentally imposed rules and standards of behaviour with little explanation or discussion. The authoritative parent also sets firm limits on the child's behaviour, but does so with flexibility, explanation and warmth (Baumrind, 1966, 1971; Gottman, Katz, & Hooven, 1997).

Subsequent factor analysis of the three parenting styles has yielded two orthogonal dimensions: an axis of responsiveness (or warmth) and an axis of demandingness (or control) (Baumrind, 1996, 2005; Maccoby & Martin, 1983). Responsiveness is described as the level to which a parent promotes autonomy in the child by being responsive and supportive with the child. Demandingness is the extent to which the parent requires the child to behave in a socially acceptable manner by regulating, controlling and monitoring the child's activities (Baumrind, 2005). The authoritarian parenting style is characterised by high control and maturity expectations (demandingness), and low in responsiveness and communication (warmth). The permissive parenting style is the reverse of this, with low control and expectations of maturity and high levels of responsiveness and communication. The authoritative parenting style balances these two somewhat by being moderate to high in control and maturity expectations of the child and high in responsiveness and communication (Baumrind, 2005; Reitman, Rhode, Hupp, & Altobello, 2002).

Since the development of these models of parenting, considerable research has been undertaken to establish their validity as constructs, their relative strengths and weaknesses as parenting models and links between parenting styles and child behaviours and outcomes (Baumrind, 1971; Reitman et al., 2002). Specific parenting styles have been linked to specific child outcomes. The authoritative parenting style has been linked with increased psychosocial adjustment (Chan & Koo, 2010; García & Gracia, 2009; Keller, 2008), a reduced body mass index in adolescents (compared to teenagers parented with a permissive or authoritarian style; Berge, Wall, Loth, & Neumark-Sztainer, 2009), reduced internalising behaviours (Rankin Williams et al., 2009), better academic achievement (Chan & Koo, 2010) and an increased frequency in partaking of family mealtimes (Berge, Wall, Neumark-Sztainer, Larson, & Story, 2010). A permissive parenting style has been associated with increased internalising problems in young children (Rankin Williams et al., 2009) and increased risk of being overweight in the first year of school (Rhee, Lumeng, Appugliese, Kaciroti, & Bradley, 2006) compared to authoritative parenting styles. Authoritarian parenting has been linked to increased eating disorder pathology in children (Enten & Golan, 2009), increased obsessive compulsive beliefs and symptoms (Timpano, Keough, Mahaffey, Schmidt,

& Abramowitz, 2010), an increased risk of being overweight in the first year of school (Rhee et al., 2006) and poorer psychosocial adjustment in preschool, middle school and adolescent years (Bender et al., 2007; Fehr, 2010; Sandstrom, 2007).

Although research consistently supports the authoritative parenting style as being associated with better child psychosocial adjustment (Baumrind, 2005; Chan & Koo, 2010; García & Gracia, 2009; Keller, 2008), permissive and authoritarian parenting styles can also both be linked to positive child outcomes. For instance, permissive parenting has been linked with higher levels of physical activity in 10-11 year old children (Jago et al., 2011). Children of authoritarian parents appear to be more likely than children of permissive or authoritative parents to show a greater decline in externalising behaviours as they get older (Rankin Williams et al., 2009). Additionally, some studies suggest that the authoritative approach is not necessarily the best across cultures – or even within Western cultures (Dwairy, 2008; García & Gracia, 2009; Rudy & Grusec, 2006). For instance, authoritarian parenting style may provide for better child outcomes than other parenting styles in collectivist cultural groups (Dwairy, 2008; Rudy & Grusec, 2006). García & Gracia (2009) found the permissive approach provided optimum outcomes for Spanish adolescents in terms of self-esteem, psychological adjustment, personal competence and problem behaviours.

Further Links between Parenting Styles and Child Outcome

Specific parenting approaches other than those proposed by Baumrind have been linked to specific child outcomes. Often in such research, parenting behaviours are divided into two broad categories: positive and negative. Positive parenting behaviours include responsiveness, consistent monitoring and parental involvement with the child. Negative parenting behaviours include inconsistent discipline, harsh punishment and corporal punishment. Negative parenting has been linked to child externalising or disruptive behaviours (Combs-Ronto, Olson, Lunkenheimer, & Sameroff, 2009; McKee et al., 2007; Prevatt, 2003), poorer academic achievement (Prevatt, 2003), and a negative perception of peers (Domitrovich & Bierman, 2001). Positive approaches to parenting have been associated with child adaptive behaviours (Prevatt, 2003), more advanced

psychosocial development (Glascoe & Leew, 2010), more successful emotion regulation (Eisenberg et al., 2005; Jaffe, Gullone, & Hughes, 2010), and a positive perception of peers (Domitrovich & Bierman, 2001). Additionally, positive parenting has been shown to buffer some of the effects of negative parenting (McKee et al., 2007).

One of the great discoveries of psychoanalysis was that of the vital role of childhood experience in the formation of personality (Orlansky, 1949). And most social scientists will agree that childhood experiences are shaped, in part, by interactions with the parents. More recent research has provided evidence that suggests a strong link between certain parenting behaviours and child personality pathology as an adult. In particular, a prospective, longitudinal study has shown aversive parenting (harsh, punitive parenting) and low nurturing (or affection) experienced in childhood is associated with personality disorder symptoms in adulthood (Johnson, Cohen, Chen, Kasen, & Brook, 2006).

Although parenting is generally a stable pattern of behaviour (McNally et al., 1991; Roberts et al., 1984), it can be responsive to training interventions. For instance, one study has revealed that teaching mothers positive parenting techniques results in significantly greater use of positive parenting techniques and less inconsistent discipline than untrained mothers (Stemmler, Beelmann, Jaursch, & Lösel, 2007). These results continued at 12 month follow-up. Two key points were raised in this research. Firstly, although the effects were significant, they were only small (suggesting that parent skills are not the only factors contributing to inappropriate parenting behaviour). Secondly, there appeared to be a ceiling effect in the results. Specifically, already competent parents showed very little improvement.

It seems logical that parenting approaches and behaviours would have a clear effect on child outcome. However, research looking to demonstrate such a relationship has generally produced mixed support for a direct relationship between parenting and child outcome (J. R. Harris, 1998; Kochanska, Aksan, & Joy, 2007; Thompson, Raynor, Cornah, Stevenson, & Sonuga-Barke, 2002). As a result, a controversy has arisen as to whether parents have any effect on their child's

development or socialisation outcomes (Collins, Maccoby, Steinberg, Hetherington, & Bornstein, 2002; J. R. Harris, 1995, 1998). Although some suggest other influences (such as peer influence or genes) play the leading role (J. R. Harris, 1995), others advocate examining mediators or mechanisms by which the correlations between parenting and child outcome occur (Kochanska et al., 2007). One such mechanism may well be emotion regulation.

As raised by Harris (1998), almost all research investigating inappropriate parenting behaviours is correlational, including the research outlined above. In other words, direct causal evidence indicating that the relationship between harsh (but not abusive) parenting and negative child outcomes is one of cause and effect is lacking. Research also indicates harsh parenting could also be elicited by a temperamentally difficult child (Lengua & Kovacs, 2005). Many theorists expect there to be several factors at play, with the two most significant variables being the interactions between the parent and child characteristics (Collins et al., 2002; Kochanska et al., 2007; Lengua & Kovacs, 2005). Awareness of this bidirectional and transactional relationship is important for the development of any parenting treatment programme aimed at improving child outcomes, as it means the individual child is likely to require treatment or training alongside the parents. Additionally, as there is currently an immense burden faced by parents due to societal views on child-rearing and child outcomes. This pressure could be eased somewhat if the "two-way street" nature of child-rearing was more prominently recognised (J. R. Harris, 1998, p.14).

In conclusion, Baumrind's three styles of parenting are well supported in the literature as important and valid approaches to understanding child-rearing. Although much research provides supporting evidence in favour of the authoritative model of parenting, this is not always the ideal for every family. It is likely that the efficacy of each of these models is impacted by the three factors discussed in the process model of parenting (parental resources, child characteristics and contextual factors). However, there is substantial evidence which favours warm, consistent and involved parenting over cold, hostile and harsh parenting. Although this might make intuitive sense, even within the last 50

years many parents considered this type of child-rearing as indulgent and likely to produce vain and conceited children (Ritchie, 2007).

How Parents Develop Their Parenting Style

One might almost expect parenting to be an innate ability – something we are able to successfully do automatically. After all, evolutionary theory dictates that the children of successful parents are most likely to survive to partner up and go on to have their own children, making good parenting a potential result of natural selection. Yet this does not seem to be the case. As is implied in the old African proverb "it takes a village to raise a child", parents require teaching and support to learn how to parent a child well. In other words, parenting is not an innate trait which kicks in when we give birth, but a set of practices that are determined by an interacting set of factors, including attributes of the parent, attributes of the child and a range of contextual elements such as culture, support and stressors (Belsky, 1984, 2005).

In examining the role of parenting in children's emotion regulation it is important to have an understanding of the factors which might contribute to the strategies and styles parent use. By conducting this type of research, there is a risk of falling into the 'blame trap', where the researcher views a particular respondent's parenting style or strategy in isolation and attributes this wholly to the parent. Consequently, this section examines what the literature suggests could contribute to different parenting styles.

Transient or dynamic factors, such as socioeconomic status and temporary stressors such as job and marital difficulties are often considered as contextual issues which contribute to parenting behaviours (Chao & Kanatsu, 2008; Kotchick & Forehand, 2002). However, three important stable factors are emphasised in the theoretical and research literature: parent personality, cultural influences and; intergenerational transmission of parenting behaviours.

Parent Personality

Research investigating the source of parenting styles and behaviours has focused closely on parent personality. Much of the research investigating parent personality and its association with parenting uses the "Big Five" or the five-factor model of personality. These five factors are usually broken down and described as: (I) Extraversion, (II) Agreeableness, (III) Conscientiousness, (IV) Emotional Stability and (V) Openness to Experience (Goldberg, 1990).

Links have been demonstrated between particular parenting styles and behaviours and these five personality constructs. For instance, one meta-analysis revealed modest, but significant associations between each of the Big Five traits and the parenting dimensions of warmth, behavioural control and autonomy support (Prinzie, Stams, Dekovi , Reijntjes, & Belsky, 2009). Another study showed parents who score higher on (II) Agreeableness and (V) Openness to Experience tend to use more positive and less negative socialisation practices when parenting their children (Hughes & Gullone, 2010). Interestingly, in Hughes and Gullone's work, parent emotion regulation was only weakly related to the emotion socialisation of the child and when other variables were considered, this correlation became non-significant. These outcomes challenge the literature on parent socialisation of emotion regulation, which identifies parent's emotional competence as a key determinant in the development of a child's emotion regulation (Katz & Windecker-Nelson, 2004; Lunkenheimer, Shields, & Cortina, 2007).

With regard to the link between parent personality and child outcomes, one study has showed this relationship to be impacted by particular parenting styles. Van Aken, et al. (2007) investigated the Big Five in relation to the parenting domains of: support, positive discipline, psychological control, lack of structure and physical punishment, and the child outcomes of attention problems and aggressive behaviours. Results showed a significant relationship between several parent personality traits and parenting styles, and two styles were linked to child outcomes (psychological control and lack of structure). However, the only Big Five trait to have a direct relationship with child outcome was Emotional Stability (which was negatively correlated with both attention problems and aggressive

behaviour). Consequently, it could be suggested by these results that parent personality is closely linked to several styles of parenting behaviours and certain parenting behaviour styles are associated with certain child outcomes, however any direct relationship between parent personality and child outcomes is limited.

Parent personality (in terms of the Big Five) is a key factor associated with the approach parents take to parenting. However, the correlations found between parent personality and parenting style have been shown in the literature to be fairly modest, suggesting the relationship is impacted by other factors. It is likely that an interactional or transactional relationship can be seen between stable parent variables and transient contextual factors, with none a sole determinant of the approach a parent adopts.

Cultural Aspects

Childrearing has been described as "kind of culturally organized formula to ensure [the child's] competence and survival" (Ogbu, 1981, p.426). The model proposed by Ogbu maintains that a significant determinant of childrearing practice is the cultural theories of success which are specific to the parents and their community. These theories subsequently dictate the parenting practices thought to bring about culturally appropriate and valued child behaviour (Kotchick & Forehand, 2002; Ogbu, 1981). Naturally, these parenting practices are then contingent on what a parent's particular culture defines as "success".

Parenting styles are bound by cultural norms and values (Chao & Kanatsu, 2008; Eisenberg, Spinrad, & Eggum, 2010; Lamm & Keller, 2007). In particular, significant differences have been found in the way parents from varying cultures manage key parenting tasks such as monitoring, behavioural control and parental warmth (Chao & Kanatsu, 2008). Nonetheless, significant differences in parenting approaches *within* cultural groups have also been demonstrated (Lamm & Keller, 2007).

The emotional response and adjustment of the child appears to be highly contingent on the norms and values specific to a particular culture (Eisenberg,

Chang, Ma, & Huang, 2009; Lansford et al., 2005). For example, research investigating Western cultures has shown parent positive expressivity of emotion to be associated with positive psychosocial outcomes for the child (Cassidy, Parke, Butkovsky, & Braungart, 1992). Yet in other cultures, this link is not always found. In one study with Indonesian parents and children, researchers found, as expected, parent's negative expressivity of emotion was negatively related to children's ability to regulate emotion (Eisenberg, Liew, & Pidada, 2001). However, positive expressivity was unrelated to children's emotion regulation. The researchers suggested that the difference between Western and Indonesian cultures might be due to the value placed on controlling the expression of strong emotion in Javanese culture.

Culture and parenting are clearly linked, as are culture and the child's response. Despite this, parents from within similar cultural models will approach childrearing quite uniquely. Consequently, although cultural values impact heavily on parenting norms and values, this is not the sole determinant of child-rearing approaches and likely interacts with other factors (such as context, parent personality and child characteristics) to generate each parent's own style.

Intergenerational Transmission

One closely examined factor thought to contribute to parenting styles is that of intergenerational transmission, i.e. children grow up to replicate the parenting style of their parents with their own children. This hypothesis is supported by a range of dominant psychosocial theories, including cognitive-behavioural theory (i.e. social learning theory; Bandura, 1977), evolutionary theory (i.e. attachment theory; Bowlby, 1969) and developmental perspectives (i.e. life-course theory; Elder, 1998). Additionally, biological theories such as epigenetic epidemiology support the concept of intergenerational transmission of parenting behaviour (Jablonka, 2004). Naturally, the way a person parents is not invariably linked with how he or she was parented. Not every child who was disciplined in a harsh manner by her parents will go on to use those same measures with her own children. Conversely, not all children raised in warm, supportive and loving homes will be able to go on to recreate this within their own families. However, evidence

suggests a strong association between the way a person was parented and the way they go on to parent their own children (Belsky, Conger, & Capaldi, 2009).

Specific parenting behaviours can be passed down through the generations. For example, the use of harsh discipline (Bailey, Hill, Oesterle, & Hawkins, 2009; Neppl, Conger, Scaramella, & Ontai, 2009), the level of parental monitoring (Bailey et al., 2009) and positive parenting (Belsky, Jaffee, Sligo, Woodward, & Silva, 2005; Kerr, Capaldi, Pears, & Owen, 2009; Neppl et al., 2009) have each been shown to have intergenerational links. Each of these studies used prospective, longitudinal research data to demonstrate significant correlations between the way a child was parented and the way that child went on to parent his or her own children. Additionally, abusive parenting (physical abuse and neglect) is likely to be repeated in parenting by abused children. In one study, up to 70% of mothers who were at risk for caretaking difficulties and who were abused as children maltreated their own children in turn (Egeland, Jacobvitz, & Papatola, 1987). Although these results are concerning, the authors noted that often, abused parents do not go on to abuse their own children and some non-abused parents do abuse.

Intergenerational transmission has also been noted to have effects that transcend parent-child transmission to have effects on the grandchild. One study revealed a very small, yet significant indirect effect (.10) of harsh parenting by grandparents on the grandchild. Specifically, results showed that harsh discipline was transmitted from grandparent to parent, resulting in externalising behaviour by the grandchild (Bailey et al., 2009).

Much of the research literature available focuses on the role of the mother in intergenerational transmission of parenting. However, it appears fathers also play a vital role in this process. Kerr, et al. (2009) conducted a three generation prospective study investigating the transmission of paternal constructive parenting on their children. Consistent with previous research, they found constructive parenting to be directly transmitted between generations from father to child, and this was partially mediated by the social adjustment of the child. Thus, although the

maternal role is clearly vital in the transmission of parenting behaviours, the paternal role is also of significant consequence.

Naturally, there is not a perfect 1:1 correlation between parenting styles of the parent and later parenting styles of the child. A number of factors influence whether and how this transmission occurs. Some variables have been identified which appear to mediate the likelihood of a particular parenting style being transmitted. For instance, child externalising behaviour has been shown to mediate the transmission of harsh discipline (Neppl et al., 2009); child academic attainment has been shown to mediate the transmission of positive parenting (Neppl et al., 2009), positive adjustment in adolescence has been shown to mediate the transmission of constructive parenting by fathers (Kerr et al., 2009) and; social competence with peers has been shown to mediate the transmission of quality parenting (Shaffer, Burt, Obradovic, Herbers, & Masten, 2009).

In sum, the research literature suggests that intergenerational transmission is a source of parenting behaviours. Not only do parents' care-giving behaviours have a direct relationship with the parenting behaviours of their children, but a residual indirect link can be traced back to the child's grandparents. Additionally, fathers cannot be discounted as having a vital influence on the parenting style their children develop. Of note, the areas of parenting that have been shown to be affected by intergenerational transmission are physical punishment, harsh or authoritarian parenting, and positive parenting – each of which is an area of importance discussed in Baumrind's models of parental control (Baumrind, 1966).

One point noted in much of the literature investigating the mechanisms by which the transmission of parenting behaviours occurs is that of intervention. The authors highlight the need for preventative interventions for a number of reasons – to break the intergenerational cycle of poor parenting, to establish the foundations for quality parenting and, significantly for this research, to help develop the social competence of an at risk child (Bailey et al., 2009; Shaffer et al., 2009).

Smacking

"There was an old woman who lived in a shoe,
She had so many children she didn't know what to do;
She gave them some broth without any bread,
She whipped them all soundly and put them to bed."

(18th Century nursery rhyme)

This chapter introduces the literature around parenting, parenting styles and the role these play in child development and emotion regulation. This research primarily sets out to investigate key domains and patterns of children's emotion regulation, and then examine these within a network of key relevant variables. However, a specific parenting behaviour has been in the political, legal and media spotlight in New Zealand over the last decade: smacking.

Smacking is defined as "the use of physical force with the intention of causing a child to experience pain but not injury for the purposes of correction or control of the child's behaviour" (Straus, 1994, p. 4). The use of "force for the purpose of correction" (New Zealand Parliament, 2007) is currently illegal in New Zealand. This means that parents (and other caregivers) are committing an offence when they use physical discipline on their child. New Zealand was the eighteenth country to criminalise the use of corporal punishment (smacking, spanking, slapping etc), and at the time of writing 33 countries have full abolition (Global Initiative to End All Corporal Punishment of Children, 2013). As a country and as a society, New Zealand was strongly divided on the subject of the "anti-smacking law" (Children's Commissioner: Manaakitia a Tatou Tamariki, 14th November, 2008; New Zealand Herald, 2007; Sunday Star Times, 2008). However, it appears that many previously staunchly held beliefs around the historical right to smack one's child are beginning to change (Children's Commissioner: Manaakitia a Tatou Tamariki, 14th November, 2008).

As this research intends to ask parents about some of the discipline measures they use with their child (including smacking), and as this remains a topical and relatively sensitive subject in New Zealand, it is important to establish what the literature makes of corporal punishment as a parenting technique.

Smacking in New Zealand

In 1993 New Zealand signed and ratified the United Nations Convention on the Rights of the Child, indicating that our children should be protected from "all forms of physical or mental violence, injury or abuse, neglect or negligent treatment, maltreatment or exploitation"(Children's Commissioner: Manaakitia a Tatou Tamariki, 2005, p. 11). It was 14 years before the New Zealand government was able to implement this into law (New Zealand Parliament, 2007). Part of the length of the delay was possibly due to the work the government had to do to educate and begin to shift the country's ideas and behaviours around smacking (Smith, Gollop, Taylor, & Marshall, June, 2004).

New Zealand's smacking history is much like other Western countries. A survey first undertaken in the 1960's found smacking to be a prevalent disciplinary technique (55% smacked their child at least once per week) and positive parenting approaches were believed to result in conceited children (Ritchie, 2007). By the 1970's, parents were using greater levels of praise and reasoning in their approach to child discipline. By the 1990's, although more praise was being used, 55% of parents continued to smack their child at least once per week. Overall, 80% of young New Zealand adults report receiving physical punishment at least once during childhood and 71% report physical punishment to have been a regular occurrence (Millichamp, Martin, & Langley, 2006).

The first country to abolish physical punishment was Sweden in 1979 (Baumrind, 1996; Global Initiative to End All Corporal Punishment of Children, 2013). In 1965, 53% of Swedes were supportive of smacking, but by 1999 only 11% felt the same way (Durrant, 1999). The smacking debate was first raised politically in New Zealand in 2005. Since this time, societal attitudes towards using physical punishment appear to be changing. Forty three percent of New Zealanders

surveyed for an omnibus report stated they support the new law (Children's Commissioner: Manaakitia a Tatou Tamariki, 14th November, 2008) and 37% clearly opposed the use of physical discipline. According to this report, in 1993 87% of respondents thought it was ok, in some circumstances, to use physical punishment to discipline a child. This figure was down to 58% in 2008.

One can understand why there was such a loud voice of opposition toward legislation banning the use of physical punishment on children by parents. Smacking has a well grounded history in New Zealand and change inevitably meets with resistance. Nonetheless, in research undertaken only 12 months after the bill was passed into law, New Zealanders appear to be showing a change in attitudes (Children's Commissioner: Manaakitia a Tatou Tamariki, 14th November, 2008). What remains to be seen is whether this change will be reflected in parenting behaviours.

Outcomes Related to Smacking

Corporal punishment has a long history and is used by parents across the world to aid in socialising children (Brownlie & Anderson, 2006; Greven, 1990; J. R. Harris, 1998; Smith, 2006). Many supporters of smacking will regularly use the statement "I was smacked as a child and it didn't do me any harm" to form a significant portion of their argument. This is probably true – for many, smacking simply formed a part of their childhood and was linked with no ill-effects. This is also true of children who experience a significant trauma – many will not experience major ill-effects. The question advocates of smacking abolition respond with is "does this make it right?". The battering of wives only became recognised as a criminal offence in the latter part of the last century. Prior to then a general societal belief was held that domestic privacy should override criminal law (with exceptions, such as infanticide) (New Zealand Parliament, 1995; Pleck, 1989). In other words, perhaps smacking is generally harmless and simply a part of growing up. Or perhaps smacking is a human rights violation that has long been invisible.

Research suggests that smacking as a parental discipline technique is associated with negative child outcomes. Early childhood smacking (ages one to three) and

smacking in middle childhood is predictive of aggressive behaviour (Berlin et al., 2009; Global Initiative to End All Corporal Punishment of Children, 2013; Kuppens, Grietens, Onghena, & Michiels, 2009; McKee et al., 2007; Stacks, Oshio, Gerard, & Roe, 2009) and poorer mental development (Berlin et al., 2009). Smacking is linked to higher levels of antisocial behaviours (Grogan-Kaylor, 2004), and both internalising and externalising behaviours in preschoolers (Arnstein, 2009). In general, it appears the most commonly seen outcome associated with smacking children is an increase in aggressive behaviours and some studies suggest there is a cumulative effect on the child's aggression if both parents smack (Kuppens et al., 2009).

Several studies have revealed that smacking is not detrimental for all children, and that several confounding or potentially mediating variables contribute to the outcomes. One systematic review of the literature has found that, while overly frequent or severe smacking can be linked to detrimental outcomes, similar results can be found when other, non-physical disciplinary tactics are examined (Larzelere, 2000). The authors suggest the possibility of a residual confound of child misbehaviour in that naughtier children are more likely to be disciplined more.

There appears to be distinct differences in how physical punishment affects boys compared to girls (Arnstein, 2009; Kuppens et al., 2009; McKee et al., 2007; Nelson & Coyne, 2009). Research suggests the link between physical punishment is stronger for boys than for girls (Nelson & Coyne, 2009). In particular, the effects of physical punishment can be more widespread and more evident for boys. Nonetheless, it is possible that boys are disciplined with smacking more often than girls and there is research evidence supporting this (McKee et al., 2007). Consequently, these correlations may be due to a number of factors. For instance, boys may be uniquely or additionally affected by the use of smacking, the negative effects of smacking may be stronger for boys as their smacking "dose" appears to be higher, a third variable (such as boy's temperament versus girl's temperament) may contribute to the outcomes, or a combination of these. Unfortunately, current research methods have not determined the cause or direction of this relationship.

Some studies have found that the relationship between physical punishment and negative outcomes is not significant (Sullivan, Carmody, & Lewis, 2010; Van Aken et al., 2007). One investigation undertaken with a Netherlands sample found no correlation between physical punishment and externalising or attention problems (Van Aken et al., 2007). Although this was a well constructed study using a community sample, the parents were the sole reporters of their own parenting and their children's behaviours. As the Netherlands was preparing to criminalise smacking at the time the research was being undertaken, the parents may have been susceptible to a particular bias in their reporting (Global Initiative to End All Corporal Punishment of Children, 2013).

Physical punishment appears to be connected with a child's ability to regulate emotions. It is difficult to establish the direction of the relationship between these two variables, and one longitudinal study was able to show that, of all the possible correlational variables they measured (e.g. gender, poverty, maternal delinquency, maternal warmth, ethnicity etc) the variable most closely (negatively) correlated with emotion regulation was smacking (Colman, Hardy, Albert, Raffaelli, & Crockett, 2006). This relationship appears to have some cross-cultural validity as a Chinese study showed emotion regulation by the child to mediate the relationship between harsh parenting (specifically scolding and smacking) and school aggression (Chang, Schwartz, Dodge, & McBride-Chang, 2003). It is difficult to determine which component of the harsh parenting contributed to the results, however other research has shown scolding does not predict negative outcomes, such as aggression, when compared with smacking (Berlin et al., 2009).

Smacking and Culture

Although physical punishment is a worldwide phenomenon, not all cultures or ethnicities treat smacking equally. Horn, Joseph and Cheng (2004) suggest that in cultural groups where smacking is a predominant, normal and culturally acceptable approach to disciplining a child, and where it is applied in a controlled manner and in the context of a nurturing relationship, the effects can be positive. However, there seem to be a number of prerequisites tagged to this statement. Importantly, "controlled" smacking is not the usual process adhered to by parents and often

parents use smacking to vent their own pent up emotion (Brownlie & Anderson, 2006). Often parents are angry when they smack (Graziano & Namaste, 1990) and many parents report smacking as they are at a loss of what else to do (Ritchie, 2007). Additionally, a key prerequisite for culturally appropriate smacking is that it is done in the context of a nurturing relationship. However, one study has demonstrated maternal warmth (or nurturing) does not moderate the relationship between smacking and child aggression (Stacks et al., 2009). Perhaps the key to child outcomes associated with parent use of smacking is the absence of a nurturing relationship, rather than the presence of physical punishment?

One investigation demonstrated that children experience less harmful effects from physical punishment in countries where smacking has a greater perceived normality. Nonetheless, regardless of culture or perceived normality, the children in the sample who were smacked were more aggressive and more anxious than those who were not (Gershoff et al., 2010; Lansford et al., 2005). However, other research has shown no evidence for differences in the effects of smacking across cultural groups (Grogan-Kaylor, 2004; Larzelere, 1996). Another study suggests that smacking is only predictive of aggressive behaviour among Caucasian children (Stacks et al., 2009). Consequently, the jury is out on whether smacking has differential effects or associations with child outcomes across cultures.

The Smacking Debate

Within the social sciences the debate over whether smacking should or even can be used has been divisive. Those who are against smacking cite dozens of studies as evidence for the damage it can cause. Those who are opposed to a blanket injunction against smacking ask whether the smacking evidence is more a case of better advocacy than better evidence (Baumrind, Larzelere, & Cowan, 2002).

An immense meta-analysis covering 88 relevant studies over 62 years was undertaken by Gershoff (2002a). In this, she discovered smacking to be associated with only one desirable construct: immediate compliance of the child. Smacking was also associated with ten undesirable constructs, including aggression, delinquent behaviours, poor mental health and physical abuse in childhood and

criminal behaviour, poor mental health and aggression in adulthood. Gershoff hypothesised that parental corporal punishment helps initiate and shape emotional and cognitive processes in the child, which in turn predisposes them to certain behaviours or experiences.

However, Gershoff's meta-analysis was critiqued due to a number of methodological flaws (Baumrind et al., 2002; Larzelere & Kuhn, 2005). Importantly, 65% of the studies included in the meta-analysis included severe physical punishment and abuse. Baumrind et al. (2002) were also concerned that Gershoff's study showed a lack of distinction between "normal" and extreme physical punishment. Consequently, another meta-analysis was conducted, with those studies removed which were deemed inappropriate due to poor quality research, outcome measures and alternative disciplinary approaches (Larzelere & Kuhn, 2005). This left a total of 26 qualifying studies. The results favoured conditional smacking and suggested that smacking per say is not the issue, but how it is applied. In particular, where smacking was the norm, the effect sizes were found to be equal to alternative forms of discipline. These results supported an earlier analysis which found higher quality studies (e.g., randomised controlled trials) showed more beneficial outcomes (e.g. increased compliance, increased delay between episodes of disobedience and, in one study, decreased aggression) to smacking compared to lower quality research (Larzelere, 1996). However, Larzelere and Kuhn found overly severe or predominant use of smacking compared unfavourably to other forms of discipline. The authors suggest that conditional smacking (when alternative measures have failed) is slightly more effective than alternative methods at reducing non-compliance or antisocial behaviour.

Larzelere (1996) has suggested specific conditions under which smacking is appropriate. These conditions include: child is aged between 2-6 years, the smacking is not severe, the punisher is under control, the punishment is done without an instrument, the smacking is used as a back-up for less aversive approaches, etc. However, where is the dividing line between mild, moderate or severe physical punishment? Given that parents often smack to vent their own frustration (Brownlie & Anderson, 2006), how often will the punisher be under

control? With all these prerequisites in place to ensure the smacking occurs in a safe context, would it not be safer to simply *not* smack?

Gershoff (2002b) replied to the critics of her meta-analysis with the argument that corporal punishment often escalates into abuse and at that point cannot be distinguished from physical abuse. In particular, she asserted that the context in which corporal punishment occurs must be considered. In particular, the family environment (e.g. a loving, supportive family) must be considered as a moderator in the relationship between corporal punishment and outcomes.

A significant point within the smacking debate is that of causation. No study investigating child outcome has been able to show that smacking *causes* adverse effects (J. R. Harris, 1998). Many of the studies examined here have been able to establish some temporal order indicating smacking to precede many of the behavioural difficulties. However, this is not always the case and many researchers have concluded that there are bidirectional and interactive effects between child variables and physical punishment (Combs-Ronto et al., 2009; Smith, 2006).

Smacking Summary

Even the experts cannot agree as to whether parental use of corporal punishment is a good approach to child rearing. Although there is substantial evidence linking the use of smacking to negative outcomes for the child, this evidence is entirely correlational, and other factors may play a key role. Additionally, when factors such as severe physical discipline and abuse are removed, those correlations seem to become minimal. If there is such a lack of consensus in the expert world about smacking, it is understandable that the lay public is so divided. Gershoff's conclusion that the family context must also be considered when examining the relationship between smacking and outcomes resonates with a question raised previously: perhaps the key to child outcomes associated with parent use of smacking is the absence of a nurturing relationship, rather than the presence of physical punishment? Perhaps parents deficient in nurturing are simply more likely to smack. Finally, although links between smacking and children's behaviour

have been repeatedly examined, researchers have yet to look closely at how children's emotion regulation might be related.

Parenting Review Summary

Parenting has a long history of being examined, with authoritative, authoritarian and permissive styles being well-recognised and clearly differentiated in the literature. Despite this differentiation, parenting behaviours and approaches are not mutually exclusive, and parents often draw elements from all three of Baumrind's original styles. Static and dynamic contributors to parenting styles are many and varied, but researchers emphasise the roles of parent personality, culture and history of how the parent was parented as key factors in creating a parent's approach. It is important to note key family factors, such as child temperament and child-parent interactional patterns as impacting on parenting style.

One main reason for parenting styles being explored so thoroughly is its presumed role in child development and outcomes. Indeed, research evidence supports the contention that parenting behaviours play a major role in overall child well-being. However, parenting is not the only factor. Peer effects, family dynamics, socio-cultural factors, socio-economic factors and child factors all evidence some influence on child development and outcomes. Additionally, the mechanism by which parenting exerts its influence on child outcome has not been defined. For example, research has consistently demonstrated harsh parenting is related to externalising and disruptive behaviours in children, but has not revealed whether this relationship is direct or moderated or mediated by other factors. It might be that parenting exerts its influence through its impact on other developmental tasks, such as a child's emotion regulation. However, a robust framework and broad yet detailed measure for understanding children's emotion regulation requires development before researchers can examine these relationships more clearly,

Nomological Validity

Cronbach and Meehl (1955) outlined a concept of examining the validity of a construct by determining how it behaves within a network of theoretically related variables. They stated that when a construct is delineated with the intention of being operationalised, the researcher needs to "specify the laws in which it occurs" (p. 290), with "laws" being the theoretical relationships. The main purpose of this network is to clarify a construct's meaning and definition. More specifically, a nomological network of variables which relate to a particular construct is created and predictions about the specific linkages between this construct and these other variables are made. A nomological net is added to over time, as other theoretical constructs are fitted into the network and further linkages made.

The idea of a nomological net is somewhat of a philosophical proposition and has no distinct methodology to follow (Trochim, 2006). However, it can provide guidance to practical solutions to establishing construct validity by informing, for instance, variables or constructs for inclusion in a multitrait-multimethod matrix. If the theory driving the nomological net is correct, then valid measures of the constructs involved in the net should produce variables whose empirical relationships align closely with the theoretical ones (J. Spicer, personal communication, August 29, 2013). The variables that are included in the network may be different from each other (such as parenting and children's emotion regulation are different from each other), as long as said linkages are specified.

This supplementary study takes a preliminary step in the development of a nomological network around the construct of children's emotion regulation. Specifically, children's emotion regulation (as operationalised by the ChERI) will be examined in relation to a small selection of variables (specifically demographics and parenting styles), some of which are expected to demonstrate linkages (as outlined below). Beginning a nomological examination of the ChERI allows for an initial step in the validation of this new measure, and permits the nomological net to be extended as research identifies additional related constructs and linkages.

Study Aims and Hypotheses

There are four key objectives that drive this step of the research. First, the results of the parenting questionnaire will provide a snapshot of current parenting styles in New Zealand. Second, the results of comparative analyses will reveal how possibly relevant demographic variables relate to both parenting, and domains and patterns of children's emotion regulation – namely, the sex, age and ethnicity of the reporting parent and the target child, household size and income level, the religious status of the reporting parent and the decile rating of the school the child attends. Third, comparative analyses will examine whether and how Baumrind's three original parenting approaches relate to domains and patterns of emotion regulation. Fourth, comparative analyses will specifically examine any links between smacking and children's emotion regulation.

The analyses for the supplementary study were completed concurrently with the analyses in Study Three, prior to domain and Profile interpretations being finalised. Consequently, it was not ethical to estimate the exact direction of relationships with emotion regulation strategies without specific indices from which to work (as they were generated after the demographic and parenting data were collected). However, based on previous research outcomes, it is expected that several of the parenting and demographics variables will demonstrate links with hotspot scores and profiles. These links (or lack thereof) will be discussed in reference to relevant research in the discussion. The specific hypotheses are:

1. Hotspots scores and profiles will demonstrate differences with respect to the sex of the child and the age of the child.
2. The sex, age and religious status of the parent, household size and income level, school decile rating and ethnicity of the parent and the child will not impact results.
3. Parenting styles will not vary based on demographic factors.[5][6]

[5] Although this hypothesis was not a core concern of the overall research, these comparisons needed to be undertaken in order to examine potential confounding variables. Additionally, the analyses results provide valuable information about variables which contribute to children's emotion regulation.

[6] Numbers two and three are considered null hypotheses, but are explicitly outlined here in order to delineate expected relationships between all the variables considered in this study.

4. There will be differences in profiles and hotspot scores based on the type of parenting approaches used.
5. Hotspot scores and profiles will differ with regards to the use of smacking.
6. Parental warmth will moderate any significant relationship between hotspot scores and reported smacking.

Data Collection, Analyses and Results

Data collection for the demographics data for this supplementary study is described in Chapter Five. Due to the small number of participants and participants' children from certain demographic groups and to enable certain statistical analyses, some of the demographic variable categories were reduced into fewer categories for any analyses involving demographic data. As there were only a small number of participants reporting practicing a religion other than no religion, Christianity or Catholicism, religious practice was condensed into two categories: practices a religion (n = 43) and does not practice a religion (n = 108). Household income was condensed into two categories: up to $50,000 ($n$ = 20) and $50,000 and above ($n$ = 131). Due to the small number of participants and participants' children from individual ethnicities other than Pākehā and Māori, parent ethnicity data were collapsed into three main groups: Pākehā/New Zealand European (n = 110), Māori (n = 14) and Other (n = 27) and child ethnicity data was collapsed into Pākehā/New Zealand European (n = 115), Māori (n = 22) and Other (n = 14). All other demographic variables were applied to the analyses in their original format.

Parenting Questionnaire

The Parenting Styles and Dimensions Questionnaire – Short Version (Robinson, Mandleco, Olsen, & Hart, 2001) was selected to assess parenting approaches and which would generate data that could be used to examine what (if any) links there might be between parenting and children's emotion regulation. The PSDQ was completed immediately after participants completed the Method of Successive Sorts (MoSS) for Study Three. Like the MoSS, this was done either by hand or

online, depending on participant's preference. This measure has previously been used to investigate links between parenting approaches and behaviours found in children in the 6-12 year old age group (Cheevers, Doyle, & McNamara, 2010; Hubbs-Tait, Kennedy, Page, Topham, & Harrist, 2008). The short-form version of the PSDQ is a 32 item self-report measure asking parents to rate how often they undertake certain parenting behaviours with their child. Parents score the frequency of their behaviours on a Likert-type scale ranging from one (never) to five (always).

The PSDQ generates three parenting scores which align with Baumrind's original parenting dimensions of authoritarian, authoritative and permissive. The short form contains 15 items reflecting reasoning/inductions, warmth and support and democratic participation constructs; 12 items reflecting verbal hostility, physical coercion and punitive constructs; and five items reflecting indulgence and failure to follow through. With permission from the developer (C. C. Robinson, personal communication, December 2, 2010), item six was altered from *spanks when child is disobedient* to *smacks when child is disobedient* to better reflect New Zealand English and item 32 (*slaps child when the child misbehaves*) was removed due to the conceptual similarity to item six. According to Robinson et al., (2001) Cronbach's alphas for the three scales were adequate to good (authoritative = .86, authoritarian = .82 and permissive = .64). Cronbach's alphas found in this study were very similar: good for authoritative (α=.86) and adequate for authoritarian (α=.79) and permissive (α=.67) scales. The adapted PSDQ items can be found in Appendix X.

Parenting Styles and Demographics

As can be seen in Table 1, parents in this sample rated themselves, on average, much higher on the PSDQ Authoritative scale and subscales than the PSDQ Authoritarian and Permissive scales and subscales. These results are consistent with other research using the PSDQ scales (e.g. Fehr, 2010; Hubbs-Tait et al., 2008; Robinson et al., 1995). Scores on the PSDQ scales and subscales varied with respect to three of the demographic variables measured: sex of the reporting parent,

household size and religion. In contrast, parenting style did not vary significantly with respect to the parent's or child's ethnicity, the parent's age, the child's age, the sex of the child, household income level or the decile rating of the school the child attends.

Table 1

Means, Standard Deviations (SD) and Ranges of Parenting Styles and Dimensions Questionnaire (PSDQ) Scores

PSDQ scales and subscales	Mean	(SD)	Range
Warmth and Support	4.41	(.45)	2.80-5.00
Reasoning/Induction	4.24	(.50)	2.80-5.00
Democratic Participation	3.86	(.51)	2.00-5.00
Authoritative Type	4.17	(.41)	2.80-5.00
Physical Coercion	1.51	(.49)	1.00-4.33
Verbal Hostility	2.23	(.61)	1.00-4.00
Non-Reasoning/Punitive	1.67	(.46)	1.00-3.00
Authoritarian Type	1.83	(.41)	1.00-3.36
Permissive/Indulgent	2.06	(.53)	1.00-3.80

Male parents rated themselves significantly lower on the PSDQ Verbal Hostility subscale (M = 1.61, SD = .32) than female parents (M = 2.26, SD = .60), $t(149)$ = 2.84, p = .005, and this contributed to the male parent's significantly lower score overall on the PSDQ Authoritarian scale (M = 1.49, SD = .12), compared with female parents (M = 1.85, SD = .41), $t(15) = 6.23$, $p < .001$. Levene's test indicated unequal variance on the analysis of the PSDQ Authoritarian scale (F = 5.41, p = .021), so the alternative t value, with degrees of freedom adjusted to 15, was used (Pallant, 2011).

Parenting Styles and Dimensions Questionnaire scores also varied significantly with respect to religion. Parents who practiced a religion scored significantly higher (M = 1.79, SD = .53) on the PSDQ Non-Reasoning/Punitive subscale than

those parents who did not practice a religion (M = 1.63, SD = .43), $t(149)$ = -1.20, p = .048.

Household size was also significantly associated with PSDQ scale and subscale scores. Overall, results showed as household size increased, PSDQ Authoritative scores decreased and PSDQ Authoritarian scores increased. More specifically, significant small to moderate negative correlations were demonstrated between household size and the PSDQ Democratic Participation subscale $r(149)$ = -.23, p = .005 and the PSDQ Authoritative scale $r(149)$ = -.18, p = .03. Significant moderate positive correlations were revealed between household size and the PSDQ Physical Coercion subscale $r(149)$ = .24, p = .003, the PSDQ Verbal Hostility subscale $r(149)$ = .24, p = .003, the PSDQ Non-Reasoning/Punitive subscale $r(149)$ = .29, p < .001 and the PSDQ Authoritarian scale $r(149)$ = .33, p < .001.

Results also demonstrated that household size was significantly larger for those who practiced a religion (M = 4.56, SD = 1.28) than for those who did not practice a religion (M = 4.00, SD = 1.04), $t(65)$ = -2.55, p = .013. Levene's test indicated unequal variance (F = 5.14, p = .025), so the alternative t value, with degrees of freedom adjusted to 65, was used (Pallant, 2011). An Analysis of Covariance (ANCOVA) was conducted to clarify the relationship between PSDQ Non-Reasoning/Punitive scores, household size and participant religious status. Prior to commencing the ANCOVA, the homogeneity-of-regression assumption was first tested to evaluate the interaction between household size and religion in the prediction of PSDQ scores. The results showed the interaction was not significant, $F(1, 147)$ = .02, p = .887, indicating the ANCOVA could proceed. The results from this analysis revealed there to be no significant relationship between parent religious status and PSDQ Non-Reasoning/Punitive scores when controlling for household size $F(1, 148)$ = 1.63, p = .204.

The full catalogue of results of statistical analyses demonstrating the relationships between parenting styles and demographic variables can be seen in Tables Y1, Y2, Y3, Y4 and Y5 in Appendix Y.

Hotspot Scores and Participant Demographics

A number of demographic factors were significantly correlated with scores on the ChERI hotspot domains, including: the sex of the child, the parent's age, the child's age, the parent's ethnicity and the child's ethnicity.

Parent age showed small to moderate correlations with several of the hotspot domains. Older parents scored their children lower on *Outward Engagement* and *Establishing Order/Control,* but higher on *Disruptive, Impulsive* and *Generating Disorder.* A weak negative relationship was found between parent age and scores on *Outward Engagement, r*(149) = -.20, *p* = .015 and *Establishing Order/Control, r*(149) = -.22, *p* = .008. A weak positive relationship was found between parent age and *Disruptive, r*(149) = .25, *p* = .002, *Impulsive/Labile, r*(149) = .21, *p* = .009 and *Generating Disorder r*(149) = .16, *p* = .046.

Child age demonstrated small to moderate correlations with several of the hotspot domains. Parents of older children scored their children higher on *Disengagement* and *Generating Disorder* and lower on *Social Connectedness/Compliance, Generating Closeness/Intimacy* and *Establishing Order/Control* than did parents of younger children. More specifically, a weak positive relationship was found between child age and *Disengagement, r*(149) = .21, *p* = .01 and a moderate positive relationship between child age and *Generating Disorder, r*(149) =.32, *p* < .001. Moderate negative relationships were found between child age and *Social Connectedness/Compliance, r*(149) = -.28, *p* = .001, *Generating Closeness/Intimacy, r*(149) = -.39, *p* = .000, and *Establishing Order/Control r*(149) = -.25, *p* = .002.

Hotspot scores differed significantly with respect to the sex of the child. In particular, girls scored significantly lower than boys on *Disruptive, t*(149) = -2.42, *p* = .017, *Impulsive/Labile, t*(149) = -2.97, *p* = .003, and *Generating Disorder, t*(149) = -2.12, *p* = .036. Additionally, girls scored significantly higher than boys on *Social Connectedness/Compliance*, *t*(149) = 2.18, *p* = .031.

The results of one-way analyses of variance (ANOVA) showed none of the hotspot scores were significantly different with respect to child ethnicity, although the

score on *Outward Engagement* was approaching significance $F(2, 148) = 2.96$, $p = .055$. Tukey's HSD post-hoc tests of the *Outward Engagement* hotspot indicated parents of Māori children scored their children significantly higher on this hotspot ($M = .40$, $SD = .27$) than parents of Pākehā children ($M = .26$, $SD = .26$), $p = .05$. The results of the one-way ANOVAs demonstrated a significant difference in parent ethnicity on *Generating Closeness/Intimacy,* $F(2, 148) = 4.86$, $p = .009$. Post-hoc tests using Tukey's HSD revealed Pākehā parents to score their children significantly lower on this hotspot ($M = -.01$, $SD = .07$) than parents who had been grouped into the Other category ($M = .05$, $SD = .09$), $p = .007$.

Tables Y6, Y7, Y8, Y9, Y10, Y11 and Y12 in Appendix Y summarise the results of statistical analyses demonstrating the relationships between hotspot scores and demographic variables, including: the sex, age, religion and ethnicity of the reporting parent, the sex, age and ethnicity of the child, the household size and income and the child's school's decile rating,

Hotspot Scores and Parenting

Although child gender and parent age did not significantly correlate with PSDQ scores, as noted above, a significant relationship was identified between a range of hotspot scores and the sex and age of the child, and the age of the parent. Consequently, statistical control was exercised during the present analysis to eliminate variance in hotspot scores due to these variables. More specifically, a partial correlation was conducted assessing the relationships between hotspot scores and parenting styles which statistically controlling for the influence of child gender and parent and child age. Parent and child ethnicity were not held constant for two reasons: firstly, the relationships between these variables and hotspot scores were not broad-reaching, only relating to one hotspot score each. Secondly, the two variables had not been reduced to dichotomous categories for prior analyses, thus cannot be controlled for within a partial correlation.

Table 2

Pearson's (r) Correlations between Hotspot Scores and Scores on the Parenting Styles and Dimensions Questionnaire (PSDQ) Subscales, Scales and PSDQ Item Six Controlling for Child Gender, Parent Age and Child Age.

PSDQ scales	ENG	SOM	DNG	DRT	IMP	SOC	INT	ORD	DRD
Warm	.21*	-.11	-.16	-.27***	-.27***	.38***	.14	.29***	-.35***
Reas	.08	-.09	.02	-.12	-.19*	.18*	-.09	.07	-.15
Demo	.15	-.06	<.01	-.22**	-.22**	.20*	<.01	.12	-.27***
AUT	.17*	-.10	-.05	-.24**	-.27***	.30***	.01	.18*	-.30***
Phys	.03	-.12	-.17*	.24**	.20*	-.12	-.09	-.11	.21**
Host	-.15	.04	.07	.26***	.25**	-.30***	-.20*	-.26**	.31***
Pun	.10	-.11	-.17*	.11	.07	-.06	.03	-.02	.15
ATN	-.03	-.06	-.09	.26***	.23**	-.23**	-.13	-.18*	.30***
PER	-.06	.13	-.03	.20*	.18*	-.21*	-.05	-.12	.15
Item Six	<.01	-.16	-.17*	.21**	.18*	-.07	-.06	-.06	.22**

Note. ENG = Outward Engagement; SOM = Inward or Somatic Focus; DNG = Disengage; DRT = Disruptive; IMP = Impulsive/Labile; SOC = Social Connectedness/Compliance; INT = Generating Closeness/Intimacy; ORD = Establishing Order; DRD = Generating Disorder. Warm = Warmth and Support subscale; Reas = Reasoning/Induction subscale; Demo = Democratic Participation subscale; AUT = Authoritative scale; Phys = Physical Coercion subscale; Host = Verbal Hostility subscale; Pun = Non-Reasoning/Punitive subscale; ATN = Authoritarian scale; PER =Permissive scale; Item Six = Question six on the PSDQ.
*p < .05. **p < .01. ***p < .001.

As is shown in Table 2, several of the PSDQ scale and subscale scores were found to correlate significantly with ChERI hotspot scores. Of note, the PSDQ Warmth and Support and Democratic Participation subscales and the PSDQ Authoritative scale demonstrated small to moderate positive correlations with *Social Connectedness/Compliance* and *Establishing Order/Control* and demonstrated small to moderate negative correlations with *Disruptive*, *Impulsive/Labile* and *Generating Disorder* hotspots. Additionally, PSDQ Physical Coercion and Verbal Hostility subscales and PSDQ Authoritarian scale demonstrated small to moderate positive correlations with *Disruptive*, *Impulsive/Labile* and *Generating Disorder* hotspots, with Verbal Hostility and Authoritarian also demonstrating small to moderate negative correlations with *Establishing Order/Control*. The PSDQ Permissive scale demonstrated small positive correlations with *Disruptive* and *Impulsive/Labile*

hotspots, and a small to moderate negative correlation with *Establishing Order/Control.*

Emotion Regulation Profiles and Demographic Variables

The five Profiles were examined for differences with respect to the demographic information collected. Profiles were statistically compared with respect to parent and child age, the sex of the child, the sex of the parent, household size, religion, parent ethnicity, child ethnicity and the decile rating of the school the child attended. Of these, the Profiles were found to differ only with respect to the sex of the child χ^2 (4, N = 151) = 13.26, p = .009. More specifically, Profile One contained significantly more boys (n = 29, 69%) and Profile Two had significantly more girls (n = 31, 68.9%). Tables Y13 and Y14 in Appendix Y summarise the results of statistical analyses demonstrating how the five emotion regulation Profiles differed with respect to demographic variables, including: the sex, age, religion and ethnicity of the reporting parent, the sex, age and ethnicity of the child, the household size and income and the child's school's decile rating,

Emotion Regulation Profiles and Parenting

A series of one-way ANOVAs was conducted to examine how the Profiles varied with respect to scores on the PSDQ scales and subscales. In particular, the Profiles were found to differ significantly with regards to scores on the Warmth and Support subscale F(4, 146) = 4.76, p = .001, the Authoritative scale F(4, 146) = 3.02, p = .02, the Physical Coercion subscale F(4, 146) = 3.4, p = .011, the Verbal Hostility subscale F(4, 146) = 4.74, p = .001 and the Authoritarian scale F(4, 146) = 4.85, p = .001. As shown in Tables Y15 and Y16 in Appendix YAppendix W, profiles did not differ significantly on Reasoning/Induction, Democratic Participation or Non-Reasoning/Punitive subscales, or the Permissive scale.

Post hoc analysis using Tukey's HSD was applied to the ANOVA results. Mean PSDQ scale and subscale scores for each Profile can be seen in Table 3, along with comparisons showing whether and how Profiles differed significantly from other Profiles on each PSDQ scale and subscale score. Profile Two had higher scores on PSDQ Warmth and Support than Profiles One and Four, lower scores on PSDQ

Physical Coercion, Verbal Hostility and Authoritarian than Profile One and higher Authoritative scores than Profile Four. In addition, Profile One had higher scores than Profile Three on PSDQ Physical Coercion and higher scores than both Profiles Three and Five on PSDQ Authoritarian.

Table 3

Mean and (Standard Deviation) and Significant Differences of Each Emotion Regulation Profile's Scores on the Parenting Styles and Dimensions Questionnaire (PSDQ)

Profile	*N*	Warm	Reas	Demo	AUT	Phys	Host	Pun	ATN	PER
One	42	4.34 *(.46)* 2*	4.18 *(.54)* -	3.80 *(.56)* -	4.11 *(.43)* -	1.72 *(.62)* 2*,3*	2.49 *(.58)* 2***	1.79 *(.57)* -	2.03 *(.46)* 2***,3*	2.16 *(.42)* -
Two	45	4.60 *(.36)* 1*,4**	4.34 *(.53)* -	4.00 *(.48)* -	4.31 *(.38)* 4*	1.43 *(.41)* 1*	1.98 *(.46)* 1***	1.63 *(.43)* -	1.70 *(.31)* 1***	1.98 *(.55)* -
Three	30	4.47 *(.43)* -	4.26 *(.46)* -	3.89 *(.44)* -	4.20 *(.34)* -	1.37 *(.43)* 1*	2.17 *(.65)* -	1.57 *(.44)* -	1.73 *(.40)* 1*	1.97 *(.61)* -
Four	21	4.17 *(.45)* 2**	4.09 *(.43)* -	3.74 *(.44)* -	4.00 *(.37)* 2*	1.54 *(.43)* -	2.37 *(.62)* -	1.74 *(.36)* -	1.91 *(.39)* -	2.20 *(.46)* -
Five	13	4.23 *(.49)* -	4.23 *(.53)* -	3.69 *(.61)* -	4.05 *(.52)* -	1.36 *(.35)* -	2.17 *(.70)* -	1.56 *(.41)* -	1.73 *(.38)* -	2.03 *(.60)* -

Note. Asterisked figures denote emotion regulation profiles from which the profile mean PSDQ scale and subscale scores differ significantly according to post-hoc analyses using Tukey's HSD. Warm = Warmth and Support subscale; Reas = Reasoning/Induction subscale; Demo = Democratic Participation subscale; AUT = Authoritative scale; Phys = Physical Coercion subscale; Host = Verbal Hostility subscale; Pun = Non-Reasoning/Punitive subscale; ATN = Authoritarian scale; PER =Permissive scale.
*p < .05. **p < .01. ***p < .001.

The only emotion regulation profile to not demonstrate statistically significant differences on PSDQ scores was Profile Five. This may have been due to a smaller number of cases being assigned to this profile (n = 13), making it difficult to achieve statistical significance. Closer examination of significance levels in the post-hoc analysis demonstrate the difference between Profile Five and Profile One on PSDQ Warmth and Support scores approached significance (p = .054).

Smacking

Item six on the PSDQ asks parents about the frequency with which they smack their child when disobedient. In order to investigate whether and how smacking is related to children's emotion regulation, scores on this single item were examined in relation to all other variables included in this phase of the research. Firstly, the PSDQ item six scores were examined in relation to participant demographic variables. Fifty one parents (34%) reported smacking their child at least "once in a while". The remaining 66% said they "never" smack their child. Results demonstrated the sex of the child was correlated with parent's scores on this item. In particular, mean scores on this item were higher for parents of boys (M = 1.46, SD = .65) than for parents of girls (M = 1.27, SD = 1.46), $t(124) = -2.10$, $p = .037$. Levene's test indicated unequal variance on the analysis of the PSDQ item six and child gender, ($F = 9.24$, $p = .003$), so the alternative t value, with degrees of freedom adjusted to 124, was used (Pallant, 2011). As can be seen in Tables Y1, Y2, Y3, Y4 and Y5 in Appendix W Y, all other associations between demographic variables and PSDQ item six were found to be non-significant.

A one-way ANOVA was conducted to examine whether Profiles differed with regards to scores on PSDQ item six. Levene's test indicated unequal variance on the analysis ($F = 3.91$, $p = .005$), so the Welch and Brown-Forsythe robust tests of quality of means were applied, $F(4, 53.44) = 1.975$, $p = .112$ and $F(4, 115.78) = 2.60$, $p = .04$, respectively. The alpha level generated by the Brown-Forsythe gave cause to further examine group means. Due to the violation of the assumption of equal variance, the Games-Howell post-hoc test was applied to compare means. The results demonstrated no significant differences between Profiles on scores for question six on the PSDQ.

Emotion regulation hotspot scores were examined in relation to PSDQ item six. Although child gender and parent age did not significantly correlate with PSDQ item six scores, as noted above, a significant relationship was identified between certain hotspot scores and the sex and age of the child, and the age of the parent, as well as between PSDQ item six and child gender. Consequently, statistical control

was exercised during the present analysis to eliminate any variance in hotspot scores due to these variables. The results can be seen in Table 9, and show a significant weak negative correlation between PSDQ item six and *Disengagement* and significant weak to moderate positive correlations between PSDQ item six and *Disruptive, Impulsive/Labile* and *Generating Disorder.*

Finally, hierarchical multiple regression analysis was undertaken to examine whether parental warmth (as measured by scores on the PSDQ Warmth and Support subscale) moderated the relationship between smacking and ChERI hotspot scores. In preparation for the analysis, the two predictor variables (mean PSDQ item six scores and mean PSDQ Warmth and Support scores) were centred. The results of the analysis can be seen in Table Y17 in Appendix Y, which shows a significant main effect of PSDQ Warmth and Support subscale scores on *Outward Engagement, Disengagement, Disruptive, Establishing Order* and *Generating Disorder.* Additionally, there was a significant main effect of PSDQ item six scores on *Inward or Somatic Focus, Disengagement, Disruptive, Impulsive/Labile* and *Generating Disorder.* There were no interaction effects between PSDQ item six scores and PSDQ Warmth and Support subscale scores on ChERI hotspot scores.

Discussion and Conclusions

This supplementary study examined the domains and Profiles created in Study Three with regards to a network of variable relationships in order to investigate preliminary construct validity for the ChERI as a measure of emotion regulation in children. One of the aims of this part of the research was to obtain a snapshot of parenting in New Zealand. The procedures outlined above were able to achieve this, in relation to Baumrind's three original parenting styles of authoritative, authoritarian and permissive. The difficulty with using self-report as the only information source is that we likely have a snapshot of how New Zealanders parent, flavoured by how New Zealanders like to *think* we parent. However, cautious inferences can still be proposed, as attitudes and beliefs about parenting are likely to guide actual parenting behaviours. With retrospect, certain aspects of parenting and family structure would also have been interesting to examine, such

as identifying single parent families, blended families or two parent families, outlining which parent provides the main care-giving and whether the main caregiver works. However, these questions were outside the bounds of the research questions and aims.

The only comparative research examining how parenting in New Zealand has changed is that conducted by James and Jane Ritchie (Ritchie, 2007). According to their work, authoritarian style parenting prevailed in the 1960's and 1970's, with scolding, shouting, removal of privileges and smacking preferred over reasoning, explanation and praise (authoritative approaches). All except one of the 150 mothers interviewed in their 1960's study reportedly smacked her child. In contrast, 34% of the parents in this study anonymously reported that they have used smacking.

In a report prepared for the Families Commission, New Zealand parenting practices were examined using semi-structured interviews, diaries and other relevant measures (Lawrence & Smith, 2009). The researchers identified 39% of their parents were authoritative, 10% permissive, 3% authoritarian and the remaining parents reported being a mixture, other or had data missing. The results presented by Lawrence and Smith correspond with the mean scores on the PSDQ scales in the current research, which indicate New Zealand parents, on average, consider themselves to use a more authoritative parenting style, followed by permissive then authoritarian styles.

Forty one percent of parents in Lawrence and Smith's study reported smacking their child. This figure is slightly higher than the 34% of parents who smacked in the current study. This small discrepancy may be due to the difference in the ages of the children studied, with Lawrence and Smith focusing on parenting children aged 4.5-5.5 years. Nonetheless, in both studies, parents tended to use smacking infrequently. This contrasts with the Ritchies' work, which indicated 55% of mothers in the 1970's smacked their children at least once per week.

Caution is warranted when comparing the results of three separate cross-sectional studies using different measures and different samples with different demographic compositions and cohort influences. Nonetheless, there is evidence to suggest a noteworthy shift in parenting styles in New Zealand in the fifty years from the mid-20th Century until today. Parents appear to be less authoritarian and use less physical coercion techniques and scolding. Parents are more likely to draw on strategies involving removal of privileges, reasoning and praise in their childrearing. Additionally, the 1960's attitude to parenting viewed warmth and praise would "spoil" a child, and mothers avoided their use (Ritchie, 2007). Consequently, it is reasonable to suggest that high mean scores on the PSDQ Warmth and Support subscales found in the current study indicates an important attitude transformation in the way we parent our children in New Zealand.

Hypotheses

The results of statistical analyses demonstrated support for the six research hypotheses was mixed, with each hypothesis discussed in turn below.

1. Hotspot Scores and Profiles Would Differ with Respect to Child Age and Gender

The hypothesis that hotspot scores would show gender and age-related differences was supported by the results of the current research. This study found mixed results for the hypothesis that emotion regulation Profiles would show age and gender related differences. Profiles did not vary significantly with regards to child age, although some variation in child gender was found between the Profiles.

The gender-related hotspot differences found by the current study has shattered no gender stereotypes, with girls tending to deploy strategies which involve more compliance, help seeking and social connection and less impulsivity, disorder and disruptiveness than boys, according to their parent's report. Gender differences in emotion regulation Profiles reflect these hotspot differences, with greater numbers of boys in Profile One (a sociable, engaged, yet impulsive and somewhat disruptive profile) and greater numbers of girls in Profile Two (even more sociable and engaged, yet less impulsive and more compliant and organised). These results are

difficult to contrast with other research into the boy/girl emotion regulation divide, as much of previous research has focused on differences between suppression and appraisal use (Gresham & Gullone, 2012; Gullone, Hughes, King, & Tonge, 2010), or on managing specific emotions or emotional contexts (Endrerud & Vikan, 2007; Schwartz & Proctor, 2000). The present study is the first to identify gender specific differences in parental reports of children's emotion regulation strategies without the problem of context- or emotion-specific regulation obscuring the meaning of results.

The results of the present study found parents reported older children to use strategies involving more disengagement and disorganisation, and less connection generation, closeness or compliance than their younger counterparts. Emotion regulation Profiles, however, did not vary by age. The age-related differences that can be seen in the hotspot scores may reflect developmental changes, such as growing autonomy from parents, increasing desire for individuality, increasing reliance on peers and increasing use of more cognitive strategies that occur during the middle school years (Gullone et al., 2010; J. R. Harris, 1998).

2. Other Demographic Variables Considered Would Not Relate to Hotspot or Profile Scores

The second part of this hypothesis, that children's emotion regulation Profiles would not differ with respect to demographic variables other than child age and gender was supported, as no significant differences were found. The first part of this hypothesis, that hotspot scores would not differ with regards to demographic variables other than child age and gender was partially supported. Support for the hypothesis was indicated by the fact that hotspot scores did not differ with regards to parent gender, religion, household income, household size or child school decile rating.

Contrary to expectations, some hotspot scores did correlate significantly with respect to parent age, and these correlations were demonstrated across six of the nine hotspot scores. Specifically, older parents rated their children as more disruptive, impulsive and disordered and less organised and outwardly engaged

than children of younger parents. A review of the available literature demonstrates little research examining links between parent age and emotional or behavioural characteristics of the child. One study examining the effects of parent age on child well-being in early and middle childhood demonstrated no significant relationship between emotional or behavioural problems or parent-child interaction quality and parent age (Boivin et al., 2009). Nonetheless, these parents were from a sample of people using assisted reproduction treatment, and their views or attitudes to parenting may differ to those of naturally conceiving parents.

Some speculation may be attempted to explain the correlation between parent age and reports of their children's emotion regulation strategies. It could be suggested that there is a direct relationship between the emotion regulation strategy use of a child and the age of his parent. However, it is important to remember the perceptual bias that may season data when other-report methods are used. This seasoning may be the cause of the correlations between parent age and children's emotion regulation. Older parents are considered to be better established in terms of financial security and career development and less likely to take risks during pregnancy and early childhood (Berryman & Windridge, 1997; Boivin et al., 2009). However, these same factors may also contribute to an increased value placed on security and structure in the home and work environments. This value can be significantly compromised by the introduction of small, tornado-like children. In other words, older parents may *view* their children to be more disruptive, impulsive and less ordered, organised or outwardly engaged than younger parents as a result of older parents more established way of life. They are simply more "set in their ways". This is an important area for future research, as many key clinical child assessment measures rely on parent report (e.g. the Child Behavior Checklist and the Conners Rating Scales) and clinicians need to consider if parent age is a factor affecting responses on such measures.

Also unexpectedly, one hotspot score varied with respect to child ethnicity and one varied with respect to parent ethnicity. In particular, parents of Māori children reported their child to display higher levels of outward engagement than parents of Pākehā children. Pākehā parents indicated their children displayed lower levels of

generating closeness and intimacy than parents grouped in the Other category. It is possible that, as these score differences were not broad ranging (i.e. only relating to one hotspot score each), the results have arisen due to Type I error. Type I error may occur due to the sheer number of analyses completed in the current study. However, it is also possible that ethnicity or cultural factors are linked with children's emotion regulation. For example, with regards to the difference found between Pākehā and Māori children on the *Outward Engagement* hotspot may be linked with cultural differences or norms in the values placed on the types of strategies found in that hotspot. For instance, strategies such as "Uses humour", "Laughs or giggles" and "Plays with peers" (all with high loadings on the *Outward Engagement* hotspot) may be differentially encouraged or modelled by parents or cohorts depending on the child's cultural norms.

Somewhat more difficult to explain is the difference in mean scores between Pākehā and Other parents on the *Generating Closeness/Intimacy* hotspot. The group composition of the Other category was very diverse and included individuals from all over the world, including: Europe, Asia, Africa and the Pacific region. Multicultural research has demonstrated people from countries which emphasise collectivism tend to regulate using reappraisal and suppression differentially to people from countries emphasising individualism (Matsumoto, Yoo, & Nakagawa, 2008). However, the Other category in the current research comprised of a balance of participants from countries with collectivist world views and countries with individualist world views. The differences on the *Generating Intimacy/Closeness* may instead be related to the processes of immigration, settling and integration. Perhaps children in such families draw on this collection of strategies more heavily as a way of establishing stronger connections or of feeling more connected. Additional research drawing on a larger sample of ethnically diverse participants would help to understand any connections that exist.

3. Parenting Styles Would Not Vary by Demographics

Partial support was demonstrated for the third hypothesis; that scores on the PSDQ scales and subscales would not vary with regards to participant demographics. Support was evidenced by the fact that several demographic variables were not

associated with parenting styles, including: parent and child ethnicity, child gender, parent or child age, income level or decile ratings. However, the PSDQ Verbal Hostility score did vary by the sex of the reporting parent, the PSDQ Non-Reasoning/Punitive score varied with respect to parent religion and several PSDQ scale and subscale scores correlated with household size. Nonetheless, parent religion was no longer relevant when household size was statistically controlled, indicating household size to be the key associated variable.

Other research into how mothers and fathers parent has also indicated some disparity between the sexes. In contrast to the current results, previous examinations show mothers tend to be more authoritative (McKinney & Renk, 2008; Simons & Conger, 2007), more permissive and less authoritarian than fathers (McKinney & Renk, 2008). Additionally, there is evidence to suggest that mothers and fathers within the same family are most likely to parent in a similar style to each other (Simons & Conger, 2007). Nonetheless, it is difficult to draw comparisons between studies, for two reasons. First, unlike the earlier research, the current study did not compare mothers and fathers from within the same family. Second, the number and proportion of fathers who participated in the current study was quite small, and there may be unique factors about these fathers making them more likely to volunteer to participate in research about parenting and children's emotion regulation. These factors make it difficult to draw conclusions about parenting differences between mothers and fathers.

An appraisal of the current research literature suggests associations between household size and parenting styles have not previously been a significant focus of investigation. However household size has previously been considered a risk factor in delinquent behaviour (Lipsey & Derzon, 1998; Phythian, Keane, & Krull, 2008). The current study demonstrated that the bigger the household, the less likely parents were to draw on authoritative strategies and the more likely parents were to use authoritarian styles. The main factor contributing to the differences in authoritativeness was the significantly lower use of democratic participation in larger households. Parental use of warmth, support, reasoning processes and indulgence did not vary. This may well be reflective of comments made in the early

household size versus delinquency literature: the greater the number of children in a family, the less time, energy and money parents will have to spend on each child (Phythian et al., 2008). Democratic participation takes time – consistently allowing a child time to ponder consequences or express opinions may simply not be feasible in larger families, where the needs of the many must take priority. Authoritarian parenting takes less time – a parent does not need to take as much time to explain repercussions or reasoning. The family size/parenting style relationship could prove a fruitful area of investigation for interested researchers.

4. Hotspot Scores and Profiles Would Differ with Regards to Parenting Styles

The results of the current study supported the hypotheses that children's emotion regulation Profiles and hotspot scores would differ with regards to the parenting styles their parents reported using. It is important to note that most significant correlations found between Profiles and hotspot scores were statistically weak. Nonetheless, all Profiles except Profile Five demonstrated significant differences with other Profiles on at least one of the PSDQ scores. The results demonstrated parental warmth and support, physical punishment and an authoritarian style to engender the greatest variation in Profiles, as the PSDQ Warmth and Support and Physical Coercion subscale and the Authoritarian scale scores each varied significantly across three of the five Profiles. Reasoning, democratic participation, punitiveness and indulgence did not vary across Profiles.

Profile Two reflects children who are outward and socially focused, well-organised and avoids being disruptive or impulsive. This Profile was associated with higher levels of parental warmth, lower levels of parental physical coercion or verbal hostility and a prevailing authoritative over authoritarian style, when compared with Profiles One and Four. Profile One is similar to Profile Two, as children with this pattern of regulating emotions also engage outwardly and socially. These children also tend to be more disruptive, impulsive and disorganised than children in Profile Two. This Profile was associated with higher levels of parental physical coercion and verbal hostility than Profiles Two and Three, and lower levels of warmth and support, with a comparatively authoritarian parenting style.

Profiles One and Two also varied with respect to child gender, with Profile Two having significantly more girls and Profile One having significantly more girls. It is possible to suspect that the main differences between these two Profiles are confounded by parents using different approaches for boys and girls. However, the results of a separate analysis indicated PSDQ scale and subscale scores did *not* vary by the gender of the child (although parents reported smacking boys significantly more than they did girls). The Profiles did not vary with respect to any of the other variables examined; variables considered most likely to contribute to emotion regulation and/or parenting variations. Consequently, the emotion regulation Profile differences in parenting approaches can be considered on their own merit.

Children's emotion regulation strategies also demonstrated correlations with parenting styles, with parental warmth and support, verbal hostility and a prevailing authoritarian style showing associations with six key emotion regulation domains. Democratic participation, physical coercion and a prevailing authoritarian style also demonstrated broad associations, correlating with four to five hotspots each. By looking at Table 2, it is apparent that parenting styles are most broadly associated with five key hotspots: *Disruptive, Impulsive/Labile, Social Connectedness/Compliance, Establishing Order* and *Generating Disorder.* Of the PSDQ subscales, Warmth and Support and Verbal Hostility related to the greatest number of emotion regulation hotspots and these two constructs were almost diametrically opposed in their correlations with hotspot scores.

The overall results show parents who use a more authoritarian style, particularly involving higher levels of verbal hostility and physical coercion have children who demonstrate greater use of disruption, impulsivity and disorganisation and less use of social connection and order to regulate emotions. By comparison, parents who are more authoritative, involving warmth, support and democratic participation, indicated their children make greater use of strategies involving social connections, compliance and organisation and less use of disruptive, impulsive and disorganised emotion regulating behaviour.

Links between emotion regulation and parenting have not been examined in a manner similar to the current research, making direct comparisons complicated. However, some associations between these results and other literature can be made. The positive association between parental warmth and support and child use of social connection, outward engagement and compliance strategies found in the current study corresponds with other investigations. For example, Khaleque, Rohner, Riaz and Sadeque (2007) found psychological adjustment (including scales of emotional responsiveness and emotional stability) was positively associated with both child and parent perceptions of parental warmth and nurturance. One longitudinal study found lower levels of parental warmth and sensitivity with their toddler predicted externalising behaviours around ages five to six, such as fighting, breaking things or failing to finish tasks (Eiden, Edwards, & Leonard, 2007).

The current research also supports the vast literature demonstrating the important relationship between harsh parenting and child behaviour. Here, the broadest-ranging correlations were between the PSDQ Verbal Hostility subscale and children's emotion regulation hotspots. In particular, parental verbal hostility was positively associated with disruptive, impulsive and disorganised emotion regulating behaviours, and negatively linked with emotion regulating behaviours such as sociability, compliance, generating intimacy and orderliness. Previous research has demonstrated harsh or authoritarian parenting is linked with a number of negative outcomes, such as externalising and disruptive behaviours, poor academic achievement, poor socio-emotional functioning and eating and anxiety disorder pathology (Combs-Ronto et al., 2009; Domitrovich & Bierman, 2001; Enten & Golan, 2009; McKee et al., 2007; Prevatt, 2003; Timpano et al., 2010). However, this is the first study to examine more closely the elements of harsh parenting (e.g. punitiveness, verbal hostility and physical discipline) and their relationship with emotion regulation.

However, as indicated in the research by Lengua and Kovacs (2005), the relationships between child adjustment and parenting styles is bi-directional, as they found children who express more emotional positivity predicted levels of parental warmth and acceptance. From these results, it could be reasoned that

children who naturally tend towards certain styles of emotion regulation behaviours are likely to elicit certain styles of parenting, which, in turn reinforces particular emotion regulating behaviours.

It is interesting to note that children's emotion regulation Profiles did not vary with respect to permissive or indulgent parenting and scores on the PSDQ Permissive scale demonstrated only modest correlations with a small number of emotion regulation hotspots. It is possible that parenting styles relate to emotion regulating behaviours differentially depending on the child's age. For instance, other research has demonstrated permissiveness to predict externalising behaviours (Rinaldi & Howe, 2012) and internalising behaviours (Rankin Williams et al., 2009) in preschoolers. Yet paternal permissiveness has been shown to be predictive of healthier eating in adolescent girls (Berge et al., 2009). Perhaps as children mature, permissiveness is a necessary style to introduce into the parenting repertoire, and something that should begin during the middle school years.

5. Hotspot Scores and Profiles Would Differ with Regards to Smacking Use

Emotion regulation Profiles did not vary with regards to parent-reported levels of smacking use. However, while statistically controlling for any influences from child gender and parent and child age, several ChERI hotspot scores correlated with the reported level of smacking use. Here, smacking was associated with lower levels of strategies reflecting disengagement, and higher levels of strategies involving disruption, impulsivity and disorganisation. The relationship between smacking and disruptive emotion regulating behaviours, such as getting into fights and damaging things, corresponds with other research in the field, which has suggested associations with childhood aggression and antisocial behaviour (Berlin et al., 2009; Grogan-Kaylor, 2004; Kuppens et al., 2009; McKee et al., 2007).

The positive relationship found here between the use of smacking and parental reports of certain child emotion regulation strategies, including impulsivity and disorganisation, appears to be unique. As the results are purely correlational, no causal inference can be made. It is easy to imagine smacking resulting from a child whose disorganisation or impulsivity has become overly frustrating for a parent, or

contributing to other, less forceful strategies failing. It is equally easy to imagine intermittent or unanticipated (for the child) use of smacking leading to disorganised and impulsive emotion-regulating behaviour. Nonetheless, it is important to note the strong correlation found between scores on the *Disruptive* hotspot and the *Impulsive/Labile* hotspot. It is possible that this relationship has caused an inflated link between impulsivity and smacking use.

The inverse relationship between scores on the *Disengagement* hotspot and smacking use was unexpected and seems more difficult to conceptualise. The *Disengagement* hotspot is comprised of items which reflect emotional, cognitive and/or physical disengagement. Does smacking somehow re-engage a child? Is smacking as a discipline technique more re-engaging than, say, time out or active ignoring when used in an emotional context? Or are the emotional behaviours that relate to smacking and those that make up items on the *Disengagement* hotspot so diametrically opposed that one must preclude the other? To be more specific, is a child who engages in the kinds of emotion regulating behaviours which might elicit smacking unlikely to draw on strategies involving emotional or cognitive detachment? Answers to these questions may be found through study replication and a more involved investigation of each child case.

6. The Relationship between Hotspot Scores and Smacking would be Moderated by Parental Warmth

Previous research has demonstrated children's emotion regulation mediates the effect of harsh discipline (such as smacking) on child aggression, with mothers' harsh parenting having the strongest effect on children's emotion regulation (Chang et al., 2003). Other research has generated mixed results regarding the influence of parental warmth and nurturing on the relationship between smacking and child aggression (McKee et al., 2007; Stacks et al., 2009) or externalising behaviours. The current study examined whether parental warmth had moderating effects on any relationship found between smacking use and children's emotion regulating behaviour. There were several significant main effects of both parental warmth and smacking on emotion regulation hotspot scores. However, contrary to expectations, there were no interaction effects, indicating parental warmth did not

moderate the relationship between smacking and children's emotion regulation behaviours.

The high scores on the PSDQ Warmth and Support subscale indicate warmth to be a valued and practiced parenting style in contemporary New Zealand. Some advocates of smacking have argued that smacking in the context of a warm and responsive parenting environment is appropriate and will not cause harm (Baumrind, 1996). The results of current research cannot provide a contradiction to this position, as neither causation nor harm can be inferred. However, the results can allow us to surmise that any relationship between smacking and emotion regulation (be them positive or negative) appears to be neither buffered nor enhanced by warm and supportive parenting.

Supplementary Research Summary

A supplementary investigation was undertaken to preliminarily assess construct validity by empirically examining how the ChERI domains and Profiles fit within a wider network of variables. The nine domains and five Profiles were subsequently subjected to comparative analyses which assessed how they fitted and functioned within a network of predetermined variable relationships. Important variables considered here were parenting styles and key demographic variables, including child gender and age. In particular, the nine emotion regulation domains behaved within this network much as expected based on previous research, providing some initial evidence for the construct validity of the measure.

One domain score differed with regards to child ethnicity and one with regards to parent ethnicity. Additionally, several emotion regulation domain scores differed with regards to parental use of smacking. Parental warmth did not moderate these relationships. Emotion regulation Profiles differed with respect to the sex of the child and parenting style. Several previously unidentified relationships between demographic variables and parenting styles were also demonstrated, including correlations between household size and parenting style and differences in parenting style with respect to parent gender.

Limitations, Implications and Conclusions

Here, every attempt was made to recruit widely and through as many methods as possible. However, the use of passive recruiting (i.e. asking interested people to make contact, rather than actively contacting a selection from the population), possibly influenced the nature of the parents who decided to make contact – and the nature of those who did not. Self-selectors could be perceived as "interested parents" who already invest heavily in the well-being of their children and give considerable thought to their own parenting practices. Parents who are less invested, focused or interested in their children's development, or perhaps parents who, for some reason, might be defensive about their own parenting practices are less likely to have been captured by this sampling method. Consequently, the results from this research can only reliably be applied to parents and children of parents who already give high regard to the importance of parenting for the outcome of their children. Nonetheless, if this is the case, it is also these parents who will likely voluntarily consider these results in relation to their own parenting and children.

Despite the assurance of anonymity of responses and the detached nature of data collection (i.e. postal or online without the immediate presence of a researcher), parents may have reported their own parenting in a way that reflects current norms or ideals of "good parenting" – namely, more authoritative. Additionally, using parental-report to collect information regarding children's emotion regulation may have introduced further bias. This bias may explain why older parents reported that their children were more disruptive, impulsive and disordered, less easily engaged in external activities and less organised than younger parents. Perhaps older parents simply view the normal activities and behaviours of childhood as more difficult to manage than younger parents.

The beginnings of a nomological net has been constructed which provides early support for the construct validity of the measure, examining parenting practices and parent and child demographics in relation to emotion regulation strategies and profiles. However, this net should be widened. Important constructs and variables

with theoretical relationships might include in the net might be: internalising behaviours, externalising behaviours, psychopathology (such as depression and anxiety), behaviour difficulties, academic performance, temperament/personality, attachment and social functioning. Defining the characteristics of the relationships between these variables will help refine the construct definition of the ChERI and provide preliminary data for the development further empirical examinations of construct validity (such as a multitrait-multimethod matrix).

Similar to previous research examining children's emotion regulation and looking for links with other factors and potential confounding variables, these results are purely correlational. No causal inferences can be made and any suggestion of such would be careless. Ethical concerns compromise the construction of a study in this domain with an experimental design looking for causal answers. However, the measures and approaches used here do lend themselves to longitudinal research design. Applying ChERI items to longitudinal research may help untangle certain time-order effects (such as which came first, the rambunctious child or the punitive approach to parenting?), helping to gain clearer picture of the relationships between the factors involved in a child's emotion regulation strategy use.

In summary, this supplementary study has made a unique contribution to the field of psychology. Here, the ChERI was examined in relation to a small set of nomological variables and found to behave much as expected, providing preliminary support for construct validity of the new measure. Additionally, this study has contributed to understandings of contemporary New Zealand parenting, as well as uncovered previously unidentified relationships between demographic variables and parenting styles. Although considerable ongoing validity and reliability assessment is necessary for this to become a useful and useable measure, this study has provided preliminary indication that these attributes of the ChERI are worth investigating further.

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APPENDIX X

INSTRUCTIONS AND ITEMS FOR THE PARENTING STYLES AND DIMENSIONS QUESTIONNAIRE: SHORT VERSION (PSDQ - ADAPTED)

This questionnaire is designed to measure how often certain parenting behaviours are used with your child (i.e. the child you have just completed the card sort in relation to).

Please read each item on the questionnaire and think about how often this type of parenting strategy is used with your child and select the number that matches most closely. The possible answers are: Never (1), Once in a while (2), Sometimes (3), Often (4), and Always (5).

Question	Never	Once in a while	Some-times	Often	Always
1. You are responsive to your child's feelings and needs.	1	2	3	4	5
2. You use physical punishment as a way of disciplining your child.	1	2	3	4	5
3. You take your child's desires into account before asking him/her to do something.	1	2	3	4	5
4. When your child asks why s/he has to conform, you state: "because I said so", or "I am your parent and I want you to".	1	2	3	4	5
5. You explain to your child how you feel about the child's good and bad behaviour.	1	2	3	4	5
6. You smack your child when s/he is disobedient.	1	2	3	4	5
7. You encourage your child to talk about his/her troubles.	1	2	3	4	5
8. You find it difficult to discipline your child.	1	2	3	4	5
9. You encourage your child to freely express him/herself even when disagreeing with you.	1	2	3	4	5
10. You punish by taking privileges away from your child with little if any explanations.	1	2	3	4	5
11. You emphasise the reasons for rules.	1	2	3	4	5
12. You give comfort and understanding when your child is upset.	1	2	3	4	5
13. You yell or shout when your child misbehaves.	1	2	3	4	5
14. You give praise when your child is good.	1	2	3	4	5
15. You give into your child when s/he causes a commotion about something.	1	2	3	4	5
16. You explode in anger towards your child.	1	2	3	4	5
17. You threaten your child with punishment more often than actually giving it.	1	2	3	4	5

Question	Never	Once in a while	Some-times	Often	Always
18. You take into account your child's preferences in making plans for the family.	1	2	3	4	5
19. You grab your child when being disobedient.	1	2	3	4	5
20. You state punishments to your child and do not actually do them.	1	2	3	4	5
21. You show respect for your child's opinions by encouraging him or her to express them.	1	2	3	4	5
22. You allow your child to give input into family rules.	1	2	3	4	5
23. You scold and criticise to make your child improve.	1	2	3	4	5
24. You spoil your child.	1	2	3	4	5
25. You give your child reasons why rules should be obeyed.	1	2	3	4	5
26. You use threats as punishment with little or no justification.	1	2	3	4	5
27. You have warm and intimate times together with your child.	1	2	3	4	5
28. You punish by putting your child off somewhere alone with little if any explanations.	1	2	3	4	5
29. You help your child to understand the impact of behaviour by encouraging the child to talk about the consequences of his/her own actions.	1	2	3	4	5
30. You scold or criticise when your child's behaviour doesn't meet expectations.	1	2	3	4	5
31. You explain the consequences of your child's behaviour.	1	2	3	4	5

APPENDIX Y

RESULTS TABLES FOR SUPPLEMENTARY RESEARCH CHAPTER

Demographics by Parenting

Table Y1

Sex Differences in Mean Scores on the Scales and Subscales of the Parenting Styles and Dimension Questionnaire (PSDQ)

PSDQ subscales and scales	Sex of the parent			Sex of the child		
	Female *N* = 144	Male *N* = 7	*t*	Female *N* = 79	Male *N* = 72	*t*
Warm	4.42 *(.45)*	4.22 *(.44)*	1.09[a]	4.43 *(.45)*	4.39 *(.45)*	.50[a]
Reas	4.24 *(.51)*	4.14 *(.49)*	.50[a]	4.24 *(.50)*	4.23 *(.51)*	.19[a]
Demo	3.86 *(.51)*	3.77 *(.55)*	.46[a]	3.89 *(.52)*	3.28 *(.50)*	.84[a]
AUT	4.17 *(.41)*	4.04 *(.44)*	.79[a]	4.19 *(.41)*	4.15 *(.41)*	.60[a]
Phys	1.52 *(.50)*	1.29 *(.41)*	1.22[a]	1.44 *(.43)*	1.58 *(.54)*	-1.81[a]†
Host	2.26 *(.60)*	1.61 *(.32)*	2.84[a]**	2.22 *(.63)*	2.24 *(.58)*	-.18[a]
Pun	1.68 *(.47)*	1.54 *(.37)*	.80[a]	1.63 *(.43)*	1.72 *(.50)*	-1.18[a]
ATN	1.85 *(.41)*	1.49 *(.12)*	6.22[b]***	1.79 *(.39)*	1.87 *(.43)*	-1.17[a]
PER	2.08 *(.53)*	1.69 *(.14)*	1.97[a]†	2.04 *(.55)*	2.09 *(.49)*	-.69[a]
Item Six	1.36 *(.56)*	1.29 *(.49)*	.35	1.27 *(.45)*	1.46 *(.65)*	-2.14[c]*

Note. Standard deviations appear in italics and parentheses below the mean. Warm = Warmth and Support subscale; Reas = Reasoning/Induction subscale; Demo = Democratic Participation subscale; AUT = Authoritative scale; Phys = Physical Coercion subscale; Host = Verbal Hostility subscale; Pun = Non-Reasoning/Punitive subscale; ATN = Authoritarian scale; PER =Permissive scale; Item Six = Question six on the PSDQ.

[a]$df = 149$. [b]$df = 15$ as equal variances not assumed. [c]$df = 124$ as equal variances not assumed.

†$p < .10$. *$p < .05$. **$p < .01$. ***$p < .001$.

Table Y2

Parent Religious Category and Household Income Category Differences in Mean Scores on the Scales and Subscales of the Parenting Styles and Dimension Questionnaire (PSDQ)

PSDQ subscales and scales	Parent practices a religion			Household income category		
	No *N* = 108	Yes *N* = 43	*t*	<$50k *N* = 20	≥$50k *N* = 131	*t*
Warm	4.39 *(.46)*	4.45 *(.42)*	-.75 [a]	4.3 *(.49)*	4.42 *(.44)*	-1.16 [a]
Reas	4.24 *(.48)*	4.22 *(.56)*	.19 [a]	4.29 *(.56)*	4.23 *(.50)*	.52 [a]
Demo	3.86 *(.49)*	3.87 *(.56)*	-.10 [a]	3.81 *(.41)*	3.87 *(.52)*	-.46 [a]
AUT	4.16 *(.40)*	4.18 *(.43)*	-.24 [a]	4.13 *(.38)*	4.17 *(.41)*	-.41 [a]
Phys	1.48 *(.51)*	1.58 *(.45)*	-1.16 [a]	1.28 *(.49)*	1.54 *(.49)*	-2.21 [a] *
Host	2.20 *(.58)*	2.30 *(.67)*	-.92 [a]	2.09 *(.58)*	2.25 *(.61)*	-1.13 [a]
Pun	1.62 *(.43)*	1.79 *(.53)*	-2.00 [a] *	1.80 *(.57)*	1.65 *(.45)*	1.32 [a]
ATN	1.79 *(.39)*	1.92 *(.45)*	-1.70 [a] †	1.76 *(.45)*	1.84 *(.41)*	-.79 [a]
PER	2.10 *(.55)*	1.96 *(.43)*	1.56 [a]	2.05 *(.48)*	2.07 *(.53)*	-.12 [a]
Item Six	1.33 *(.58)*	1.42 *(.50)*	-.85 [a]	1.15 *(.37)*	1.39 *(.58)*	-1.80 [a] †

Note. Standard deviations appear in italics and parentheses below the mean. Warm = Warmth and Support subscale; Reas = Reasoning/Induction subscale; Demo = Democratic Participation subscale; AUT = Authoritative scale; Phys = Physical Coercion subscale; Host = Verbal Hostility subscale; Pun = Non-Reasoning/Punitive subscale; ATN = Authoritarian scale; PER =Permissive scale; Item Six = Question six on the PSDQ.

[a] $df = 149$.

† $p < .10$. * $p < .05$.

Table Y3

Pearson's r Correlations between Parenting Styles and Dimension Questionnaire (PSDQ) Scale and Subscale Scores and Parent Age, Child Age, Household Size and School Decile Ratings

PSDQ scales and subscales	Parent age	Child age	Household size	School decile
Warmth and Support Subscale	.08	-.05	-.08	-.01
Reasoning/Induction Subscale	-.03	-.01	-.13	-.06
Democratic Participation Subscale	.10	<-.01	-.23**	.10
Authoritative Scale	.05	-.03	-.18*	.01
Physical Coercion Subscale	-.03	-.12	.24**	.07
Verbal Hostility Subscale	<.01	.05	.24**	.10
Non-Reasoning/Punitive Subscale	-.09	-.09	.29***	.03
Authoritarian Scale	-.04	-.05	.33***	.09
Permissive Scale	.05	-.05	<-.01	.07
Item Six	-.02	-.10	.11	<-.01

Note. Item Six = Question six on the PSDQ.
*p < .05. **p < .01. ***p < .001.

Table Y4

Summary of Analyses of Variance Results Comparing Mean PSDQ Scores by Three Child Ethnicity Categories: Pākehā, Māori and Other

PSDQ scales and subscales		Sum of squares	df	Mean square	F
Warmth and Support Subscale	Between Groups	.29	2	.15	.73
	Within Groups	29.86	148	.20	
	Total	30.15	150		
Reasoning/Induction Subscale	Between Groups	.04	2	.02	.09
	Within Groups	37.96	148	.26	
	Total	38.01	150		
Democratic Participation Subscale	Between Groups	.20	2	.10	.38
	Within Groups	38.49	148	.26	
	Total	38.69	150		
Authoritative Scale	Between Groups	.06	2	.03	.19
	Within Groups	25.00	148	.17	
	Total	25.06	150		
Physical Coercion Subscale	Between Groups	.71	2	.35	1.45
	Within Groups	35.96	148	.24	
	Total	36.66	150		
Verbal Hostility Subscale	Between Groups	1.22	2	.61	1.67
	Within Groups	54.10	148	.37	
	Total	55.32	150		
Non-Reasoning/Punitive Subscale	Between Groups	.37	2	.19	.86
	Within Groups	32.03	148	.22	
	Total	32.40	150		
Authoritarian Scale	Between Groups	.45	2	.23	1.34
	Within Groups	24.91	148	.17	
	Total	25.37	150		
Permissive Scale	Between Groups	.79	2	.40	1.44
	Within Groups	40.60	148	.27	
	Total	41.39	150		
Item Six	Between Groups	.30	2	.15	.48
	Within Groups	46.39	148	.31	
	Total	46.69	150		

Note. None of the comparisons were significant. PSDQ = Parenting Styles and Dimensions Questionnaire. Item Six = Question six on the PSDQ.

Table Y5

Summary of Analyses of Variance Results Comparing Mean PSDQ Scores by Three Parent Ethnicity Categories: Pākehā, Māori and Other

PSDQ scales and subscales		Sum of squares	df	Mean square	F
Warmth and Support Subscale	Between Groups	.29	2	.14	.71
	Within Groups	29.86	148	.20	
	Total	30.15	150		
Reasoning/Induction Subscale	Between Groups	.24	2	.12	.35
	Within Groups	37.76	27[a]	.26	
	Total	38.01	29		
Democratic Participation Subscale	Between Groups	.26	2	.13	.49
	Within Groups	38.43	148	.26	
	Total	38.69	150		
Authoritative Scale	Between Groups	.04	2	.02	.13
	Within Groups	25.02	148	.17	
	Total	25.06	150		
Physical Coercion Subscale	Between Groups	.50	2	.25	1.02
	Within Groups	36.17	148	.24	
	Total	36.66	150		
Verbal Hostility Subscale	Between Groups	.74	2	.37	1.00
	Within Groups	54.58	148	.37	
	Total	55.32	150		
Non-Reasoning/Punitive Subscale	Between Groups	.10	2	.05	.22
	Within Groups	32.30	148	.22	
	Total	32.40	150		
Authoritarian Scale	Between Groups	.15	2	.07	.43
	Within Groups	25.22	148	.17	
	Total	25.36	150		
Permissive Scale	Between Groups	.45	2	.22	.81
	Within Groups	40.94	148	.28	
	Total	41.39	150		
Item Six	Between Groups	.51	2	.26	.82
	Within Groups	46.18	148	.31	
	Total	46.69	150		

Note. None of the comparisons were significant. PSDQ = Parenting Styles and Dimensions Questionnaire. Item Six = Question six on the PSDQ.

[a]Levene's test indicated unequal variance on the analysis for the Reasoning/Induction Subscale ($F = 3.10$, $p = .048$), so the Welch robust test of equality of means was applied and within groups degrees of freedom reduced to 27 (Pallant, 2011).

Demographics by Hotspots

Table Y6

Sex Differences in Mean Scores on the Children's Emotion Regulation Inventory (ChERI) Hotspots

ChERI hotspots	Sex of the parent			Sex of the child		
	Female *N* = 144	Male *N* = 7	*t*	Female *N* = 79	Male *N* = 72	*t*
ENG	.28	.26	.21	.31	.25	1.25[a]
	(.26)	*(.34)*		*(.29)*	*(.24)*	
SOM	-.15	-.17	.29	-.16	-.15	-.54
	(.13)	*(.14)*		*(.13)*	*(.12)*	
DNG	-.17	-.11	-.91	-.17	-.17	-.03
	(.17)	*(.21)*		*(.16)*	*(.18)*	
DRT	-.16	-.16	.04	-.21	-.11	-2.15*
	(.24)	*(.22)*		*(.25)*	*(.22)*	
IMP	-.03	-.02	-.28	-.07	.01	-2.70**
	(.16)	*(.15)*		*(.17)*	*(.15)*	
SOC	.33	.32	.12	.38	.29	2.18*
	(.25)	*(.29)*		*(.27)*	*(.23)*	
INT	.01	.01	-.23	.00	.01	-.47
	(.08)	*(.04)*		*(.07)*	*(.09)*	
ORD	.01	.00	-.17	.01	-.03	1.71†
	(.14)	*(.12)*		*(.15)*	*(.13)*	
DRD	-.08	-.14	.86	.11	-.05	-2.12*
	(.17)	*(.08)*		*(.17)*	*(.16)*	

Note. Standard deviations appear in italics and parentheses below the mean. ENG = Outward Engagement; SOM = Inward or Somatic Focus; DNG = Disengage; DRT = Disruptive; IMP = Impulsive/Labile; SOC = Social Connectedness/Compliance; INT = Generating Closeness/Intimacy; ORD = Establishing Order; DRD = Generating Disorder. *df* = 149.
[a]*df* = 147 as equal variances were not assumed.
†$p < .10$. *$p < .05$. **$p < .01$.

Table Y7

Parent Religious Category and Household Income Category Differences in Mean Scores on the Children's Emotion Regulation Inventory (ChERI) Hotspots

ChERI hotspots	Parent practices a religion			Household income category		
	No *N* = 108	Yes *N* = 43	*t*	<$50k *N* = 20	≥$50k *N* = 131	*t*
ENG	.27 *(.26)*	.32 *(.27)*	-1.17	.32 *(.28)*	.28 *(.26)*	.76
SOM	-.15 *(.12)*	-.17 *(.14)*	1.11	-.15 *(.13)*	-.15 *(.12)*	.27
DNG	-.16 *(.17)*	-.19 *(.16)*	1.12	-.16 *(.21)*	-.17 *(.16)*	.33
DRT	-.15 *(.24)*	-.18 *(.24)*	.55	-.25 *(.21)*	-.15 *(.24)*	-1.88†
IMP	-.03 *(.16)*	-.04 *(.16)*	.20	-.10 *(.15)*	-.02 *(.16)*	-1.88†
SOC	.33 *(.26)*	.35 *(.25)*	-.61	.35 *(.28)*	.33 *(.25)*	.27
INT	.01 *(.08)*	.01 *(.08)*	-.51	.01 *(.10)*	.01 *(.08)*	.24
ORD	-.01 *(.13)*	-.01 *(.16)*	-.21	.05 *(.17)*	-.02 *(.13)*	.09[b]
DRD	-.09 *(.16)*	-.08 *(.19)*	-.09[a]	-.12 *(.18)*	-.08 *(.17)*	-.88

Note. Standard deviations appear in italics and parentheses below the mean. ENG = Outward Engagement; SOM = Inward or Somatic Focus; DNG = Disengage; DRT = Disruptive; IMP = Impulsive/Labile; SOC = Social Connectedness/Compliance; INT = Generating Closeness/Intimacy; ORD = Establishing Order; DRD = Generating Disorder. *df* = 149.
[a]*df* = 68 as equal variances were not assumed. [b]*df* = 23 as equal variances were not assumed.
†*p* < .10.

Table Y8

Pearson's r Correlations between Children's Emotion Regulation Inventory (ChERI) Hotspot Scores and Parent Age, Child Age, Household Size and School Decile Ratings

ChERI hotspots	Parent age	Child age	Household size	School decile
Outward Engagement	-.20*	-.14†	.06	.02
Inward or Somatic Focus	.02	.10	-.08	<-.01
Disengage	.08	.21**	-.10	<.01
Disruptive	.25**	.09	.12	<-.01
Impulsive/Labile	.21**	-.03	.04	.04
Social Connectedness/Compliance	-.15†	-.28***	<.01	.02
Generating Closeness/Intimacy	-.07	-.39***	<-.01	.11
Establishing Order	-.22**	-.25**	-.02	.01
Generating Disorder	.16*	.32***	.07	-.06

Note. †*p* < .10. **p* < .05. ***p* < .01. ****p* < .001.

Table Y9

Summary of Analyses of Variance Results Comparing Mean Children's Emotion Regulation Inventory (ChERI) Hotspot Scores by Three Parent Ethnicity Categories: Pākehā, Māori and Other

ChERI hotspots		Sum of squares	df	Mean square	F
Outward Engagement	Between Groups	.10	2	.05	.68
	Within Groups	10.38	148	.07	
	Total	10.47	150		
Inward or Somatic Focus	Between Groups	.01	2	.00	.23
	Within Groups	2.41	148	.02	
	Total	2.41	150		
Disengage	Between Groups	.03	2	.02	.56
	Within Groups	4.30	148	.03	
	Total	4.33	150		
Disruptive	Between Groups	.19	2	.10	1.67
	Within Groups	8.44	148	.06	
	Total	8.63	150		
Impulsive/Labile	Between Groups	.01	2	.01	.39
	Within Groups	3.96	62[a]	.03	
	Total	3.98	64		
Social	Between Groups	.13	2	.06	.99
Connectedness/Compliance	Within Groups	9.57	148	.06	
	Total	9.70	150		
Generating	Between Groups	.06	2	.03	4.86**
Closeness/Intimacy	Within Groups	.89	148	.01	
	Total	.95	150		
Establishing Order	Between Groups	.10	2	.05	2.63
	Within Groups	2.83	148	.02	
	Total	2.93	150		
Generating Disorder	Between Groups	.08	2	.04	1.48
	Within Groups	4.14	148	.03	
	Total	4.22	150		

Note. [a] Levene's test indicated unequal variance on the analysis for the Impulsive/Labile hotspot ($F = 3.45$, $p = .034$), so the Welch robust test of equality of means was applied and within groups degrees of freedom reduced to 62 (Pallant, 2011).
$^{\dagger}p < .10$. $^{*}p < .05$. $^{**}p < .01$. $^{***}p < .001$.

Table Y10

Tukey's HSD Post-Hoc Comparison for Mean Generating Closeness/Intimacy Hotspot Scores by Three Parent Ethnicity Categories: Pākehā, Māori and Other

(I) Parent ethnicity category	(J) Parent ethnicity category	Mean diff (I-J)	Std. error	95% Confidence interval	
				Lower bound	Upper bound
Pākehā	Māori	-.02	.02	-.07	.03
	Other	-.05**	.02	-.09	-.01
Māori	Pākehā	.02	.02	-.03	.07
	Other	-.03	.03	-.09	.03
Other	Pākehā	.05**	.02	.01	.09
	Māori	.03	.03	-.03	.09

Note. $^{**}p < .01$.

Table Y11

Summary of Analyses of Variance Results Comparing Mean Children's Emotion Regulation Inventory (ChERI) Hotspot Scores by Three Child Ethnicity Categories: Pākehā, Māori and Other

ChERI hotspots		Sum of squares	df	Mean square	F
Outward Engagement	Between Groups	.40	2	.20	2.96†
	Within Groups	10.07	148	.07	
	Total	10.47	150		
Inward or Somatic Focus	Between Groups	.07	2	.04	2.23
	Within Groups	2.34	148	.02	
	Total	2.41	150		
Disengage	Between Groups	.04	2	.02	.76
	Within Groups	4.29	148	.03	
	Total	4.33	150		
Disruptive	Between Groups	.22	2	.11	1.94
	Within Groups	8.41	148	.06	
	Total	8.63	150		
Impulsive/Labile	Between Groups	.09	2	.04	1.62
	Within Groups	3.89	148	.03	
	Total	3.98	150		
Social Connectedness/Compliance	Between Groups	.15	2	.08	1.17
	Within Groups	9.55	148	.06	
	Total	9.70	150		
Generating Closeness/Intimacy	Between Groups	.02	2	.01	1.65
	Within Groups	.93	148	.01	
	Total	.95	150		
Establishing Order	Between Groups	.09	2	.04	2.31
	Within Groups	2.84	148	.02	
	Total	2.93	150		
Generating Disorder	Between Groups	.04	2	.02	.76
	Within Groups	4.18	148	.03	
	Total	4.22	150		

Note. $^{\dagger}p < .10$.

Table Y12

Tukey's HSD Post-Hoc Comparison for Mean Outward Engagement Hotspot Scores by Three Child Ethnicity Categories: Pākehā, Māori and Other

(I) Child ethnicity category	(J) Child ethnicity category	Mean diff (I-J)	Std. error	95% Confidence interval	
				Lower bound	Upper bound
Pākehā	Māori	-.14*	.06	-.29	.00
	Other	-.06	.07	-.24	.11
Māori	Pākehā	.14*	.06	.00	.29
	Other	.08	.09	-.13	.29
Other	Pākehā	.06	.07	-.11	.24
	Māori	-.08	.09	-.29	.13

Note. *$p < .05$

Demographics by Profiles

Table Y13

Summary of Analyses of Variance Results Comparing Five Emotion Regulation Profiles by Demographic Variable Means Including: Parent Age, Household Size, School Decile Rating and Child Age

Demographic variables		Sum of squares	df	Mean square	F
Parent Age	Between Groups	172.14	4	43.03	1.44
	Within Groups	4357.61	146	29.85	
	Total	4529.75	150		
Residents	Between Groups	2.26	4	0.57	0.43
	Within Groups	191.92	146	1.31	
	Total	194.19	150		
School Decile	Between Groups	17.86	4	4.46	0.78
	Within Groups	835.54	146	5.72	
	Total	853.40	150		
Child Age	Between Groups	22.95	4	5.74	1.72
	Within Groups	487.44	146	3.34	
	Total	510.40	150		

Note. None of the comparisons were significant.

Table Y14

Cross-tabulation Summary of Profile Differences by Demographic Variables

Demographic variable	Profile one	Profile two	Profile three	Profile four	Profile five	*df*	χ^2	Φ_c
Sex of Parent								
Female	42	43	28	19	12	4	4.73 [a]	.16
	(1.7)	(.1)	(-.6)	(-1.1)	(-.5)			
Male	0	2	2	2	1			
	(-1.7)	(-.1)	(.6)	(1.1)	(.5)			
Religion								
No	30	30	23	15	10	4	1.10	.09
	(.0)	(-.9)	(.7)	(.0)	(.5)			
Yes	12	15	7	6	3			
	(.0)	(.9)	(-.7)	(.0)	(-.5)			
Parent Ethnicity								
Pākehā	33	29	22	16	10	8	3.74[a]	.11
	(1.0)	(-1.5)	(.1)	(.4)	(.3)			
Māori	4	4	3	2	1			
	(.1)	(-.1)	(.2)	(.0)	(-.2)			
Other	5	12	5	3	2			
	(-1.2)	(1.8)	(-.2)	(-.5)	(-.2)			
Household Income								
<$50k	5	8	3	1	3	4	3.45 [a]	.15
	(-.3)	(1.1)	(-.6)	(-1.2)	(1.1)			
≥$50k	37	37	27	20	10			
	(.3)	(-1.1)	(.6)	(1.2)	(-1.1)			
Sex of Child								
Female	13	31	17	12	6	4	13.26**	.30
	(-3.3)	(2.7)	(.5)	(.5)	(-.5)			
Male	29	14	13	9	7			
	(3.3)	(-2.7)	(-.5)	(-.5)	(.5)			
Child Ethnicity								
Pākehā	33	31	25	18	8	8	6.51 [a]	.14
	(.4)	(-1.4)	(1.0)	(1.1)	(-1.3)			
Māori	6	8	4	1	3			
	(-.1)	(.7)	(-.2)	(1.4)	(.9)			
Other	3	6	1	2	2			
	(-.6)	(1.1)	(-1.3)	(.0)	(08)			

Note. Adjusted standardised residuals appear in parentheses below group frequencies
[a]Less than 80% of cells had an expected frequency of five or more, thus results from a Fisher's Exact Probability Test have been shown.
**$p < .01$.

Profiles by Parenting

Table Y15

Summary of Analyses of Variance Results Comparing Five Emotion Regulation Profiles by Scores on the Parenting Styles and Dimensions Questionnaire (PSDQ) Scales and Subscales

PSDQ scales and subscales		Sum of squares	df	Mean square	F
Warmth and Support Subscale	Between Groups	3.48	4	.87	4.75***
	Within Groups	26.68	146	.18	
	Total	30.15	150		
Reasoning/Induction Subscale	Between Groups	1.13	4	.28	1.12
	Within Groups	36.88	146	.25	
	Total	38.01	150		
Democratic Participation Subscale	Between Groups	1.73	4	.43	1.71
	Within Groups	36.95	146	.25	
	Total	38.69	150		
Authoritative Scale	Between Groups	1.91	4	.48	3.02*
	Within Groups	23.15	146	.16	
	Total	25.06	150		
Physical Coercion Subscale	Between Groups	3.13	4	.78	3.40*
	Within Groups	33.54	146	.23	
	Total	36.66	150		
Verbal Hostility Subscale	Between Groups	6.36	4	1.59	4.74***
	Within Groups	48.96	146	.34	
	Total	55.32	150		
Non-Reasoning/Punitive Subscale	Between Groups	1.26	4	.32	1.48
	Within Groups	31.14	146	.21	
	Total	32.40	150		
Authoritarian Scale	Between Groups	2.97	4	.74	4.85***
	Within Groups	22.39	146	.15	
	Total	25.36	150		
Permissive Scale	Between Groups	1.39	4	.35	1.27
	Within Groups	40.00	146	.27	
	Total	41.39	150		
Item Six	Between Groups	2.79	4	.70	2.60[a]*
	Within Groups	43.90	116	.30	
	Total	46.67			

Note. [a] Levene's test indicated unequal variance on the analysis for Item Six ($F = 3.91$, $p = .005$), so the Brown-Forsythe robust test of equality of means was applied and within groups degrees of freedom reduced to 116 (Pallant, 2011)
*$p < .05$. ***$p < .001$.

Table Y16

Post-Hoc Comparison for Selected PSDQ Scales and Subscales by Five Emotion Regulation Profiles

PSDQ scales and subscales	(I) Profile	(J) Profile	Mean diff (I-J)	Std. error	95% Confidence interval	
					Lower bound	Upper bound
Warmth and Support Subscale	1	2	-.26*	.09	-.51	.00
		3	-.13	.10	-.41	.15
		4	.17	.11	-.15	.48
		5	.11	.14	-.27	.48
	2	1	.26*	.09	.00	.51
		3	.13	.10	-.15	.41
		4	.42**	.11	.11	.74
		5	.36†	.13	-.01	.74
	3	1	.13	.10	-.15	.41
		2	-.13	.10	-.41	.15
		4	.30	.12	-.04	.63
		5	.24	.14	-.16	.63
	4	1	-.17	.11	-.48	.15
		2	-.42**	.11	-.74	-.11
		3	-.30	.12	-.63	.04
		5	-.06	.15	-.48	.36
	5	1	-.11	.14	-.48	.27
		2	-.36†	.13	-.74	.01
		3	-.24	.14	-.63	.16
		4	.06	.15	-.36	.48
Authoritative Scale	1	2	-.21	.09	-.44	.03
		3	-.10	.10	-.36	.16
		4	.11	.11	-.19	.40
		5	.05	.13	-.29	.40
	2	1	.21	.09	-.03	.44
		3	.11	.09	-.15	.37
		4	.31*	.11	.02	.60
		5	.26	.13	-.08	.61
	3	1	.10	.10	-.16	.36
		2	-.11	.09	-.37	.15
		4	.20	.11	-.11	.52
		5	.15	.13	-.21	.52
	4	1	-.11	.11	-.40	.19
		2	-.31*	.11	-.60	-.02
		3	-.20	.11	-.52	.11
		5	-.05	.14	-.44	.34
	5	1	-.05	.13	-.40	.29
		2	-.26	.13	-.61	.08
		3	-.15	.13	-.52	.21
		4	.05	.14	-.34	.44
Physical Coercion Subscale	1	2	.29*	.10	.01	.58
		3	.36*	.11	.04	.67
		4	.18	.13	-.17	.54
		5	.36	.15	-.06	.78
	2	1	-.29*	.10	-.58	-.01
		3	.06	.11	-.25	.38
		4	-.11	.13	-.46	.24
		5	.07	.15	-.35	.49
	3	1	-.35*	.11	-.67	-.04

PSDQ scales and subscales	(I) Profile	(J) Profile	Mean diff (I-J)	Std. error	95% Confidence interval Lower bound	95% Confidence interval Upper bound
		2	-.06	.11	-.38	.25
		4	-.17	.14	-.55	.20
		5	.01	.16	-.43	.45
	4	1	-.18	.13	-.54	.17
		2	.11	.13	-.24	.46
		3	.17	.14	-.20	.55
		5	.18	.17	-.28	.65
	5	1	-.36	.15	-.78	.06
		2	-.07	.15	-.49	.35
		3	-.01	.16	-.45	.43
		4	-.18	.17	-.65	.28
Verbal Hostility Subscale	1	2	.52***	.12	.17	.86
		3	.33	.14	-.05	.71
		4	.13	.15	-.30	.55
		5	.32	.18	-.19	.83
	2	1	-.52***	.12	-.86	-.17
		3	-.19	.14	-.57	.19
		4	-.39†	.15	-.81	.03
		5	-.20	.18	-.70	.31
	3	1	-.33	.14	-.71	.05
		2	.19	.14	-.19	.57
		4	-.20	.16	-.66	.25
		5	-.01	.19	-.54	.52
	4	1	-.13	.15	-.55	.30
		2	.39†	.15	-.03	.81
		3	.20	.16	-.25	.66
		5	.20	.20	-.37	.76
	5	1	-.32	.18	-.83	.19
		2	.20	.18	-.31	.70
		3	.01	.19	-.52	.54
		4	-.20	.20	-.76	.37
Authoritarian Scale	1	2	.33***	.08	.09	.56
		3	.30*	.09	.04	.56
		4	.11	.10	-.17	.40
		5	.30	.12	-.04	.64
	2	1	-.33***	.08	-.56	-.09
		3	-.03	.09	-.28	.23
		4	-.21	.10	-.50	.07
		5	-.02	.12	-.37	.32
	3	1	-.30*	.09	-.56	-.04
		2	.03	.09	-.23	.28
		4	-.18	.11	-.49	.12
		5	.00	.13	-.36	.36
	4	1	-.11	.10	-.40	.17
		2	.21	.10	-.07	.50
		3	.18	.11	-.12	.49
		5	.19	.14	-.20	.57
	5	1	-.30	.12	-.64	.04
		2	.02	.12	-.32	.37
		3	.00	.13	-.36	.36
		4	-.19	.14	-.57	.20
Item Six[a]	1	2	.26	.13	-.11	.63
		3	.35	.14	-.03	.73
		4	.12	.16	-.33	.57
		5	.32	.17	-.16	.80
	2	1	-.26	.13	-.63	.11

PSDQ scales and subscales	(I) Profile	(J) Profile	Mean diff (I-J)	Std. error	95% Confidence interval	
					Lower bound	Upper bound
		3	.09	.10	-.19	.37
		4	-.14	.13	-.51	.23
		5	.06	.14	-.36	.48
	3	1	-.35	.14	-.73	.03
		2	-.09	.10	-.37	.19
		4	-.23	.13	-.61	.15
		5	-.03	.14	-.45	.39
	4	1	-.12	.16	-.57	.33
		2	.14	.13	-.23	.51
		3	.23	.13	-.15	.61
		5	.20	.16	-.28	.68
	5	1	-.32	.17	-.80	.16
		2	-.06	.14	-.48	.36
		3	.03	.14	-.39	.45
		4	-.20	.16	-.68	.28

Note. PSDQ = Parenting Styles and Dimensions Questionnaire. Tukey's HSD post-hoc analysis used to compare Profile means.

[a]Due to the violation of the assumption of equal variance on Item Six (Levene's Statistic: $F = 3.91$, $p = .005$), the Games-Howell post-hoc test was applied to compare means for this variable.

$^{\dagger}p < .10$. $^{*}p < .05$. $^{**}p < .01$. $^{***}p < .001$.

Table Y17

Hierarchical Regression Analysis of Main and Interaction Effects of PSDQ Item Six and PSDQ Warmth and Support Subscale on Hotspot Scores

Variables	*β*	*Adjusted R^2*
Outward Engagement		
Step 1		.026†
PSDQ Item Six	.006	
PSDQ Warmth and Support	.197*	
Step 2		
PSDQ Item Six * PSDQ Warmth and Support	.057	
Inward or Somatic Focus		
Step 1		.026†
PSDQ Item Six	-.163*	
PSDQ Warmth and Support	-.126	
Step 2		
PSDQ Item Six * PSDQ Warmth and Support	.133	
Disengagement		
Step 1		.050**
PSDQ Item Six	-.194*	
PSDQ Warmth and Support	-.175*	
Step 2		
PSDQ Item Six * PSDQ Warmth and Support	-.033	
Disruptive		
Step 1		.091***
PSDQ Item Six	.208*	
PSDQ Warmth and Support	-.230*	
Step 2		
PSDQ Item Six * PSDQ Warmth and Support	-.076	
Impulsive/Labile		
Step 1		.087***
PSDQ Item Six	.199*	
PSDQ Warmth and Support	-.229**	
Step 2		
PSDQ Item Six * PSDQ Warmth and Support	-.057	
Social Connectedness		
Step 1		.127***
PSDQ Item Six	-.038	
PSDQ Warmth and Support	.368***	
Step 2		
PSDQ Item Six * PSDQ Warmth and Support	.008	
Generating Closeness/Intimacy		
Step 1		.008
PSDQ Item Six	.002	
PSDQ Warmth and Support	.145	
Step 2		
PSDQ Item Six * PSDQ Warmth and Support	-.078	

Variables	*β*	*Adjusted R^2*
Establishing Order		
Step 1		.065**
PSDQ Item Six	-.039	
PSDQ Warmth and Support	.273***	
Step 2		
PSDQ Item Six * PSDQ Warmth and Support	.028	
Generating Disorder		
Step 1		.132***
PSDQ Item Six	.175*	
PSDQ Warmth and Support	-.323***	
Step 2		
PSDQ Item Six * PSDQ Warmth and Support	-.055	

Note. PSDQ = Parenting Styles and Dimensions Questionnaire
†$p < .10$. *$p < .05$. **$p < .01$. ***$p < .001$.