

ATHABASCA UNIVERSITY

REFLECTIVE FUNCTIONING: AN ANALYSIS OF MEASURES AND THE 18-  
ITEM PARENT REFLECTIVE FUNCTIONING QUESTIONNAIRE

BY

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The undersigned certify that they have read the thesis entitled

**“Reflective Functioning: An Analysis of Measures and the 18-Item  
Parent Reflective Functioning Questionnaire”**

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### **Abstract**

The purpose of this thesis was 1) to conduct a systematic literature review of reflective functioning (RF) measures to identify the most appropriate parent RF tool for Circle of Security Parenting (COS-P) program evaluation, and 2) to examine the factor structure and test the discriminant and construct validity of the Parent Reflective Functioning Questionnaire-18 (PRFQ-18). The literature review identified 86 studies containing 11 RF measures. The psychometrics of the PRFQ-18 were tested in a sample of 306 Canadian parents via an online survey called “Experiences in Parenting.” A confirmatory factor analysis of the PRFQ -18 supported a 3-factor structure with 3 subscales: 1) pre-mentalizing, 2) interest and curiosity, and, 3) certainty of mental states. Theoretically consistent relationships were found between the PRFQ-18 and stress, parental coping, parental competence and social support. These results confirm that the PFRQ-18 is a suitable measure to assess parent RF pre and post COS-P.

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### Preface

I was a member of the Circle of Security Parenting (COS-P) Evaluation Team during my graduate program and conducted my thesis research with the direction and support of this team of investigators, collaborators and student members. The aim of this Athabasca University (AU) based research group is to develop a COS-P evaluation protocol to test COS-P intervention effectiveness with parents of typically developing children. External funding for this research has been obtained; a seed grant from the Alberta Centre for Child, Family and Community Research and a meeting and planning grant from the Canadian Institutes of Health Research. Internal funding from the AU Academic Research Fund has also been instrumental in supporting this research. The manuscripts included in this thesis have shared authorship due to the collaborative input in conceptualizing and finalizing them. The first paper, *A Review of Reflective Functioning Measure for Evaluating Relationship-Based Parenting Programs*, is a systematic literature review that I conducted. I wrote the first draft of the manuscript and revised the manuscript with input from Gwen Rempel, Shawn Fraser, and Gina Wong; thus, authorship for this manuscript is DeRoo, Rempel, Fraser and Wong. Gina Wong is the corresponding author.

The second paper, *Examining the Construct Validity of the Parent Reflective Functioning Questionnaire*, is a psychometric study of an RF measure. Shawn Fraser designed and implemented the “Experiences in Parenting” study, and collected the data. With his, I analyzed and interpreted the data. I wrote the first draft of the manuscript and revised the manuscript with input from Gwen Rempel, Gina Wong, and Shawn Fraser. The authorship for this manuscript is DeRoo, Wong, Rempel, and Fraser. Shawn Fraser is the

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## CHAPTER 1. INTRODUCTION

Reflective Functioning, first described as *reflective self*, refers to one's capacity to understand that their own behaviour and that of others is reinforced by mental states such as intentions, beliefs, feelings, and desires (Fonagy, Steele, Steele, Moran, & Higgitt, 1991). This capacity is significant as it enables an individual to engage in perspective taking and to monitor their own and other's actions influencing how individuals choose to react to other people's behaviour (Fonagy et al., 1991). RF is developed by a child's understanding of the world around them through observation and experience (Fonagy et al., 1991; Fonagy, Steele, Moran, Steele, & Higgitt, 1993) and is influenced by parenting.

In detail, during the first year of life, an infant's social being is directed by physical reflection; being able to manage the world of feelings and ideas resulting from mental states. In the second year, an infant's intuitive awareness becomes apparent through their interests in the feelings of others and in their curiosity of pain, worry, anger and desire. By the third year, children begin to discuss their own and other's feelings (Bretherton, NcNew, & Beeghley-Smith, 1987); growing the capacity to understand that people have unique feelings and intentions (Fonagy et al., 1991; Fonagy et al., 1993) and to consider mental states of others before acting (Wimmer, & Perner, 1983). As of age six, a complex reflective self is acquired (Flavell, Green, & Flavell, 1986); providing one with the capability to convey and assemble one's own and other's behaviour and the underlying feelings, thoughts, desires and beliefs (Fonagy et al., 1991; Fonagy et al., 1993). In general, our understanding of the world and individual's mental states is fundamentally tied to the development of the reflective self throughout childhood (Fonagy et al., 1991; Fonagy et al., 1993).

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Fonagy also suggested that parenting can influence the development of RF during childhood (Fonagy et al., 1991; Fonagy et al., 1993). He described four parental capacities that contribute to an infant's reflective self: 1) ability to help manage their infant's affect, predict physical needs, and adapt their perspectives to their child, 2) capacity to be aware that their infant is a psychological entity, 3) ability to reflect on their infant's mental experiences and reflect them back in a language the infant understands, and, 4) capacity to understand their own actions and mental states to perceive and comprehend their own child's behaviour (Fonagy et al., 1991; Fonagy et al., 1993). These parental capacities allow parents to reflect their child's own psychological experience; thus, providing the child with the required tools to develop RF. For example, a mother comes home from work and experiences her child crying and reaching to get picked up. A mother with RF capacity is able to be aware of what is going on in the child's mind in the moment (e.g., sadness, anticipation) while also holding her own mental state of frustration and relief. She is able to reflect back to the child what they may be experiencing ("oh, you missed me"), and respond with a hug or positive language. The child then experiences that it is okay to express a range of emotions. In other words, the child's reflective self develops in response to the mental capacities of their parents (Fonagy et al., 1991; Fonagy et al., 1993).

### **RF and Attachment**

Over the course of repeated reflective experiences, a child learns that they are safe and secure; forming and shaping secure parent-child attachments (Fonagy et al., 1991; Fonagy et al., 1993). Using the previous example, RF plays a role in the parent's ability to step back and consider their own feelings and the influences they have on their child

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(Ensink, Normandin, Plamondon, Berthelot, & Fonagy, 2016); mother reflects that she is tired, but getting upset at the child who is crying will only escalate their behaviour). This enables the parent to refrain from responding negatively (i.e., provides the child with a hug or positive language), supporting the development of attachment security (Ensink et al., 2016). For this reason, it is important for parents to take account of one's own and other's mental state, and to understand behaviour in terms of the child's psychological world.

In addition, RF plays a role in the development of secure parent-child attachments by improving parents' ability to recognize and cope with their own defenses in order to help regulate their infants affect (Fonagy et al., 1993). For example, when a parent is able to recognize their harsh tone towards their crying child and change their response to a tone of voice that reflects warmth towards the child behaviour, they are more capable to help the child manage their own emotions. This is supported by the Ensink et al. (2016) study that demonstrated that mothers with high RF had a better capacity to manage their own anxiety, fear, and anger, and were better able to guard their infants from negative parenting behaviours.

Attachment theory, first discussed by John Bowlby, was founded on the notion that attachment is a biological function that serves to protect survival of the human species (Bowlby, 1982). This function is any form of behaviour that concludes in an individual attaining or sustaining proximity to a person that is seen to better manage the world (Ainsworth, 1969; Ainsworth & Bell, 1970; Bowlby, 1982). Attachment behaviours continue throughout the life span, beginning in early childhood (Ainsworth, 1969) and include clinging, smiling, crying, calling, (Ainsworth, 1969; Ainsworth & Bell,

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1970) and raising the arms (Ainsworth, 1969). As an infant becomes aware that the attachment figure is available, receptive and secure (Bowlby, 1982), the infant continues the relationship; resulting in an attachment to the parent (Ainsworth, 1969; Ainsworth & Bell, 1970). As the infant becomes mobile, proximity seeking decreases as the infant moves towards exploration and play (Ainsworth, 1969). Attachment behaviours may weaken or fade away with consistent absence of an attachment figure, but never fully vanish (Ainsworth & Bell, 1970).

Ainsworth and Bell (1970) identified three attachment styles between the child and parent in the context of the Strange Situation. Secure attachment is reflected in situations when the child demonstrates appropriate distress behaviours such as crying and searching when the attachment figure is removed from the environment, while also being able to cope and soothe oneself back into exploration and play; the child will engage with others while the parent is in the environment and will avoid strangers while being alone. Avoidant-insecure attachment is characterized by the child who has angry outbursts, heightened aggression, and rejecting responses when a stranger appears and the mother returns to the environment. Avoidant-insecure attachment is characterized by little response such as looking and moving away by the child with a stranger and when the parent is in the environment. Later on, disorganized attachment was introduced as a child displaying strong avoidance subsequently by proximity seeking, inconsistent behaviour patterns, undirected and interrupted movements, confusion, and apprehension (Main & Solomon, 1986).

Overall, RF, the human capacity to understand one's own and other's mental states, is a human capacity that is developed through the understanding of experiences



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and observation, and through parenting. When experienced positively, these influences build secure parent-child attachments (Ensink et al., 2016). Considering the significant role RF plays in the development of secure parent-child attachment, there has been an increase in reflective parenting programs.

### **Parenting Programs**

Over the years research has demonstrated the positive effects of parenting programs for both parents and children. Parenting programs are shown to decrease negative parental behaviour, reduce stress, and increase parental competency (Barlow, Bergman, Korner, Yinghui, & Bennett, 2016) and efficacy in the parenting role (Stattin, Enebrink, Özdemir, & Giannotta, 2015). In regards to the child, parenting programs may lead to an increase in emotional and behaviour adjustments, (Barlow et al., 2016); decreasing behavioural, emotional, and social problems (Smith, Brown, Feldgaier, & Lee, 2015). In addition, Sandler, Ingram, Wolchik, Tein, and Winslow (2015) highlighted the long term benefits of parenting programs for children and adolescents ages 3- 15 years including a reduction in substance use/abuse, high-risk sexual behaviour and an increase in self-esteem, self-regulation, coping abilities and academic success.

For example, The Community Parent Education Program, developed in Canada, intends to strengthen the parent-child relationship, enhance cooperation between the child and the parent, and help parents resolve everyday concerns with their children (Smith et al., 2015). Another Canadian program, Nobody's Perfect, is designed to support parents who are young, single, socially or geographically isolated or who have low income or limited formal education (Skypnek & Charchun, 2009). The Triple P-Positive Parenting Program, widely available in Canada and implemented throughout Alberta, aims to

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improve social, emotional and behavioural outcomes in children by enhancing parental practices, satisfaction and efficacy (Sanders, Kirby, Tellegen, & Day, 2014). All of these programs focus on the child's behaviours, helping parents to manage behaviour self-regulation and engaging with their child positively.

On the other hand, reflective parenting programs have become more prevalent influenced on the perspective that “changes in a relationship are often the result of changes in a parent's capacity to make sense of her child as a separate, differentiated person with thoughts, feelings, and a mind of his own; that is to think more reflectively” (Slade, 2006, p. 642). For example, Parents First (Goyette-Ewing et al., 2003, as cited in Slade, 2006) is a group intervention for parents with infants and/or children that aim to enhance parental RF and help parents make sense of their child by providing progressive reflective exercises over the course of 12 weeks. Central to this program is the notion that by engaging parental RF capabilities, parent-child relationships will be enhanced leading to school readiness and success. In addition, Minding the Baby, a preventative program for high-risk pregnant young women, has a strong emphasis on enhancing RF capabilities. Considering the high needs of this population, this program is delivered on a weekly basis in the parent's home and pays particular attention towards helping new parents to hold their child's mind to enhance parent-child attachments (Slade, 2006). Furthermore, the Circle of Security Parenting (COS-P) Program, recently introduced in Alberta, is an 8-week intervention aiming to enhance parent reflective functioning (RF) by utilizing a manualized DVD-based program to support secure parent-child attachments (Cooper, Hoffman, & Powell, 2009). COS-P intends to achieve this by providing a secure space for parents to reflect on how they were parented, their own style of parenting and

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their struggles (Cooper et al., 2009). Overall, it appears that parenting programs have shifted in focus from behaviours to emotions; having significant impacts on child development, RF and the parent-child attachment.

### **Circle of Security**

As mentioned earlier, reflective parenting programs such as the Circle of Security aim to enhance parent RF and build secure parent-child attachments. The Circle of Security Parenting program was established by Cooper, Hoffman, and Powell in 2007. This 8-week manualized DVD-based program (Cooper et al., 2009) is based on Ainsworth's theoretical concepts of a Secure Base and a Haven of Safety (Ainsworth, Blehar, Waters, & Wall, 1978) and research in child development, RF, attachment, emotional regulation, and parent-child interactions. To convey these concepts in a way that influences parenting, Cooper, Hoffman, Marvin, and Powel (2000 as cited in Cooper et al., 2009) designed the Circle of Security diagram (see Appendix A). The hands on the Circle represent the parent providing a Secure Base to support the child's need for exploration (demonstrated on the upper half of the Circle). As the child explores, the box to the right side of the Circle identifies the child's need to be watched over, delighted in, helped and/or enjoyed. The bottom half of the Circle identifies the child's attachment need to be welcomed back to a Safe Haven. The box in the left corner of the diagram identifies the child's need to be welcomed, protected, comforted, delighted in, and helped to organize their feelings. The goal of the COS-P is to provide material to parents in a way that can be understood and accessible to them during their especially challenging moments of parenting.

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The COS-P, based on Ainsworth's (1969) attachment theory, aims to enhance secure parent-child attachments by increasing parent RF. To achieve this, the COS-P facilitator presents DVD material, and pauses during "teaching moments" to present information and "processing moments" to introduce an exercise or discussion (Cooper et al., 2009). At this time, the facilitator provides reflective questions to encourage parents to reflect on their own childhood experiences, their experiences as parents, their parenting patterns and their struggles as parents (Cooper et al., 2009). The DVD provides parent-child interaction video clips that encourage parents to reflect on their own parenting, offer their insights in terms of understanding a child's behaviour, suggest appropriate parent responses, and identify underlining attachment needs being activated in the child (Cooper et al., 2009). The goal for parents is to recognize where they struggle and what needs to change to increase their ability to recognize and hold their child's mental state and respond effectively.

As a student counsellor, I have interacted with a variety of families in a range of service delivery systems. These services provide one-to-one counselling for families and group parenting programs to help support healthy parent-child relationships in the community. As a novice counsellor, I have been drawn to the 8-week COS-P program because it reflects values that are consistent with my practice beliefs. These values include helping others, community, accountability and responsibility, security, research and knowledge, therapeutic alliance, unconditional positive regard, and empathy. For instance, the COS-P program is a manualized intervention that helps the trained COS-P facilitator to help parents in an office or community context by offering a timely, creative, and straightforward approach reflective parenting (Cooper et al., 2009). In

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addition, the COS-P promotes accountability and responsibility by challenging parents and COS-P facilitators to identify their strengths and struggles in parenting and helping parents with their parenting (Cooper et al., 2009). The COS-P provides security by creating a safe place for parents to explore and communicate their thoughts, feelings, beliefs and desires. Importantly, the COS-P supports the therapeutic alliance, empathy, and unconditional positive regard by inviting counsellors to “be with” the parents and their experiences while also inviting parents to “be with” their children (Cooper et al., 2009). For these reasons, the 8-week COS-P program is a promising individual and group intervention in counselling psychology; however, it is important to evaluate the effectiveness of this intervention to ensure it is a suitable parenting program for counselling service delivery systems. To date, limited research has been conducted on the COS-P; evaluation of the effectiveness of this 8-week program is needed.

Considering how important parenting programs are to successful child development and the recent introduction of COS-P to Alberta, and since parent RF is a key desired outcome of the COS-P program, it is necessary to determine the best way to assess parent RF pre- and post- COS-P. The purpose of this thesis, therefore, was to identify the most appropriate RF measure and to test the psychometric properties of the measure evaluate the effectiveness of the COS-P in a Canadian context.

### **Summary**

Overall, research has identified the significance of reflective parenting programs to child development, parental RF, parenting quality, and the parent-child relationship. These outcomes have encouraged a growth of reflective parenting programs such as the COS-P that can be utilized in various counselling service delivery systems. In line with my professional values, the COS-P program aims to increase parent reflective functioning

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by supporting parents to gain a deeper understanding of their feelings, perceptions, and beliefs, and their child's behaviours, and attachment needs; all to build secure child-parent attachments. To date, limited research (Gray, 2015; Passagli et al., 2014; Rostad, 2015) has been conducted on the COS-P; evaluation of the effectiveness of this 8-week program is needed. Since parent RF is a key desired outcome of the COS-P program, it is necessary to determine the best way to assess parent RF pre- and post- intervention.

The format following the introduction of this thesis involves Chapter 2: Methodology containing information regarding the underlying assumptions of this thesis, advantages and disadvantages of these assumptions, and the limitations and procedural process utilizing in this thesis. Chapter 3 involves two manuscripts and lastly, Chapter 4 entails a discussion on the research outcomes, and future implications and research.

### **Current Study and Research Questions**

The first step in my thesis study was to identify the most applicable RF measure to utilize in evaluating the COS-P through a rigorous knowledge synthesis process. A systematic literature review was conducted to identify all RF measures available in the field of psychology applicable to adults and parents over the age of 18. A key objective was to retrieve and assess the strengths, weaknesses and psychometrics properties of each RF measure. At the time of this review and to the best of my knowledge, no published synthesis of RF measures existed. Therefore, this review was timely as it provided the first critical review and resource on the characteristics, psychometrics, strengths and weaknesses of RF measures. In addition, the compilation of the details of studies examining RF in the field of psychology will serve as a useful reference for both

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clinicians and researchers. The research questions that guided this systematic literature review were:

1. What RF measures are available in the field of psychology?
2. Which measure is most appropriate to utilize in evaluating the COS-P?

Taking into consideration time, cost and applicability, it appeared that the 18-item Parent Reflective Functioning Questionnaire (PRFQ-18) (Luyten, Mayes, Nijssen, & Fonagy, submitted for publication) is the most suitable RF measure to evaluate the COS-P. This simple paper and pencil self-report measure has no cost requirements for training, coding and scoring and administering, and is specific for parents. Having identified the PRFQ-18 as the most appropriate measure of parent RF, I proceeded to further test the psychometric properties of this measure by confirming the PRFQ-18's reliability and validity. To do so, a confirmatory factor analysis examined the PRFQ-18 factor structure and discriminant and construct validity was tested with four other measures. Considering there was no independent study investigating the PRFQ-18, this study is significant in terms of conducting less biased psychometric testing of the PRFQ-18 than that conducted by the originators of the measure. The third and fourth research question of my thesis project that guided this study were:

3. Does the PRFQ-18 measure three different characteristics of reflective functioning as identified by Luyten and his colleagues?
4. Are there theoretically meaningful relationships between the PRFQ and the Medical Outcome Study Social Support Survey (MOS-SSS) (Gjesfjeld, Greeno, & Kim, 2008), Parenting Sense of Competence Scale (PSOC) (Johnston & Mash, 1989), Perceived Stress Scale (PSS) (Cohen, Kamarck, & Mermelstein, 1983),

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and Parenting Coping Scale (PCS) (Ghate & Moran, 2013)? These measures were chosen as they reflect the constructs of interest and have demonstrated a good track record of reliability and validity.



## CHAPTER 2: METHODOLOGY

The methodology chapter begins by describing the underlying assumptions for both the systematic literature review and the construct validity study, followed by highlighting the disadvantages of these assumptions. Next, the limitations within both studies are described and lastly, the procedural processes are briefly presented.

### **Assumptions**

Assumptions are a set of principles that describe and reflect a perspective about the nature of reality (Krauss, 2005). These assumptions provide a philosophical foundation to the procedural process (methodology) and the reason of scientific inquiry (Giacchino Gelo, 2012). In addition, these assumptions significantly influence how a researcher creates meaning through data analysis (Krauss, 2005). Specifically, through qualitative data analysis, it is these assumptions that help give meaning to experiences (Krauss, 2005). This first section contains information of the assumptions underlying the systematic literature review and the construct validity study.

**Systematic literature review.** Knowledge synthesis is an emerging method across multidisciplinary fields including health, education and psychology (Kastner, Antony, Soobiah, Straus, & Tricco, 2016). Knowledge synthesis methods integrate qualitative and quantitative evidence to reveal contextual and theoretical foundations (Kastner et al., 2016) in the directions of launching or improving a theory, viewpoint or phenomena (Tricco et al., 2016b). Knowledge syntheses are critical to advance practice and research by translating or transferring research findings into practice and policy (Whittemore, Chao, Jang, Minges, & Park, 2014). How one chooses a method depends generally on its purpose and need (Kastner et al., 2016). Examples of knowledge

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synthesis methods include scoping reviews, integrative reviews and systematic reviews (Gant & Booth, 2009). Taking into account the purpose of literature review, it was assumed that a knowledge synthesis method would be the most suitable approach to identify all the RF measures available in the field of psychology.

In particular, systematic reviews contain a variety of key features. Systematic reviews can be implemented for any topic that involves a synthesis of literature, and utilizes particular approaches to recognize, select and assess research (Mallidou, 2014). In general, systematic reviews recapitulate the evidence on what works (Kastner et al., 2016). Systematic reviews involve well-established guidelines and checklists to ensure a rigorous review and reduce bias (Whittemore et al., 2014). Specifically, the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) contains a 27-item checklist and procedural flow diagram to map the number of records identified, included and excluded (Moher, Liberati, Tetzlaff, & Altman, 2009). In addition, the PRISMA is recommended to enhance clarity of reporting and consistency. For these reasons, I assumed that a systematic review is the reliable approach to synthesis studies implementing RF measures.

**Construct validity study.** The concept of construct validity was developed to address the legitimacy of psychological concepts that do not have a clear position in reality (Colliver, Conlee, & Verhulst, 2012). In other words, to measure concepts that cannot be directly observed but is assumed to exist based on people's behaviour (Leedy & Ormrod, 2013). Examples of this include motivation, love, prejudice, and creativity (Leedy & Ormrod, 2013). The purpose of construct validity is to verify that an instrument measure is capable of measuring a particular construct (Leedy & Ormrod, 2013). For

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example, a thermometer is able to measure temperature; however, some constructs do not have this universal agreement. For this reason, construct validity is necessarily to identify the degree of legitimacy the test is deemed to hold (Cronbach & Meehl, 1955).

Considering that RF is a mental process (a construct) that cannot be observed but rather an observation, it requires construct validation to be supported (Landy, 1986). Several approaches have been developed to investigate the construct validity of measurements including Multitrait-Multimethod Matrix (Campbell & Fiske, 1959), and Nomological Networking (Cronbach, & Meehl, 1955).

The Multitrait-Multimethod Matrix (MTMM) comprises a practical methodology for researchers to assess construct validity of study measures (Campbell & Fiske, 1959). This occurs by measuring several concepts by at least two methods (questionnaire, direct observation) (Campbell & Fiske, 1959). An example of where you might implement the MTMM model is testing self-esteem, motivation, and resiliency in children of the age of 12. Ideally, construct validity is demonstrated by identifying that measurement of the same constructs correlate higher with each other than with measurements of different traits or constructs (Campbell & Fiske, 1959). Even though MTMM provided a strict outline for assessing construct validity, it can be difficult to measure all constructs across different methods (Campbell & Fiske, 1959).

The Nomological Networking approach authenticates theoretical attributes and qualities that are unable to be clearly described by universal principles (Colliver et al., 2012). The purpose of Nomological Networking is to create a clear description of what something is or to gain knowledge on a theoretical construct (Cronbach & Meehl, 1955). This involves examining relationships of observable properties to each other, of

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theoretical construct to observable properties, and different theoretical constructs to one another (Cronbach & Meehl, 1955). Evidence of construct validation involves observing patterns of interrelationships between the measures of the construct being examined and other independent measures (Shore & And, 1990). Considering the theoretical framework and applicability to psychological testing, I chose the Nomological Networking approach as the appropriate method to undergo construct validation.

### **Disadvantages of Chosen Approaches**

One of the key concerns in quantitative research is the potential for researchers to be more focused on the methods rather than on the philosophical assumptions underlying them (Gioacchino Gelo, 2012). This is problematic as it ignores the beliefs, perspectives and expectations that underlie human behaviour. In addition, it inhibits critical awareness and reflexivity; interrupting self-correction and generating alternative approaches (Gioacchino Gelo, 2012). This next section of the thesis highlights the disadvantages of the chosen approaches to my thesis research.

**Systematic literature review.** Alongside the positive critiques of systematic reviews are also the disadvantages of this approach. Systematic reviews do not explain what works for whom, under what type of circumstance, by what means, and why (Tricco et al., 2016a). In addition, systematic reviews have been seen as unable to address complex questions (Tricco et al., 2016b) and do not include non-evidence based sources (Tricco et al., 2016a). Whitemore et al. (2014) expressed that systematic reviews risk bias in terms of what studies are included and the quality of studies being utilized; affecting the evidence gathered. Furthermore, Mallidou (2014) explained that systematic reviews require a team to complete the amount of work needed. Lastly, Leedy and

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Ormrod (2013) mention the usage of secondary sources can potentially distort an original source's assumption with their own personal assumptions and biases. Considering that a variety of secondary sources were utilized to obtain information regarding the characteristics of specific RF measures, the systematic literature review is vulnerable to this disadvantage.

**Construct validity study.** A disadvantage of the Nomological Networking highlighted in the literature relates to the notion that researchers who are attempting to validate a measure may present evidence that fits with their examination (Colliver et al., 2012); creating biased circumstantial (Colliver et al., 2012). In addition, Colliver et al. (2012) explains that the psychology field lacks a network of scientific laws that connect constructs and observables, impacting the ability to provide a thorough foundation for the validation of measurements. Furthermore, even though all kinds of evidence is identified through the process of interpretation on a theoretical construct such as correlations with other variables, evidence such as a 3-factor solution compared to a 4-factor solution does not necessarily confirm with confidence that a measure is capable of measuring what it purports to (Colliver et al., 2012). Given that the construct validity project aims at identifying a 3-factor solution in the PRFQ-18, results do not assure that the PRFQ-18 is capable of measure 3 key characteristics of RF with confidence.

### **Limitations**

This section of the methodology explains the limitations for the systematic literature review and the construct validity study.

**Systematic literature review.** This systematic literature review contained limitations that need to be addressed. Due to limited funding, this review did not include

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published books which may have contained further RF measures. The studies included in this synthesis lacked literature identifying the psychometric properties for each RF measure; therefore, restricting the quality and depth of this review. Furthermore, considering that one of the strengths of a systematic literature is reliability, a drawback of this study is only having one reviewer and data extractor. MacLure, Paudyal, and Stewart (2016) specifically indicate that the data extraction process should be conducted by at least two researchers working independently to reduce bias. That said, there were limitations related to this being a thesis project but given the proliferation of parenting programs and urgent need for synthesis of potential research measures, this review remained timely and relevant.

**Construct validity study.** Limitations within the construct validity study surrounded the implication of self-report measures. This includes the individual's level of insight (Haefel & Howard, 2010), and the potential to inaccurately answers various questions (Paulhus & Vazire, 2007). These limitations can obscure and influence data by not providing truthful account; thus misrepresenting the sample population. In addition, this study did not extend the confirmatory factor analysis in an independent study in order to verify our findings.

### **Procedures**

In this segment, I provide a brief description of the data collection and storage process, the inclusion and exclusion process, and the data analysis process utilized for the systematic literature review and the construct validity study. More details are presented in each paper.

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**Systematic literature review.** Collecting data for this study entailed using a variety of search terms in several databases, and journals. Data obtained were placed and reviewed in ZOTERO (n.d.) on a password protected laptop. The inclusion process for this review involved all studies written in the English language that examined RF in adults at the age of 18 years or older and/ or parents between the dates of 1990-2016 to uncover the earliest publications of RF. Excluded data were determined via the PRISMA (Moher et al., 2009) selection process. Data analysis consisted of a qualitative synthesis of studies.

**Construct validity study.** The data collection process for this research project involved recruiting Canadian parents between the ages of 20-60 with at least one child under the age of 12 through SurveyMonkey's *Survey Audience*. Data acquired were stored in a password protected SurveyMonkey account and then placed onto a secured, password protected laptop. Data included in this study consisted of 306 parent reports of: MOS-SSS, PSOC, PSS, and the PCS, and 317 parent reports of PRFQ-18. Data were excluded when there was data missing from a questionnaire. Data analysis involved screening for outliers and missing data, testing the factor structure and configuration of the PRFQ-18 using the confirmatory factor analysis, and investigating the relationships between the PRFQ-18 subscales and the subscales of the MOS-SSS, PSOC, PSS and the PCS using bivariate correlations.

### Summary

The methodology for this thesis consists of a systematic literature review and a construct validity study. The underlying assumption for the literature review involves knowledge synthesis, a constructive method to integrate qualitative and quantitative

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studies examining RF. The theoretical framework underlying the construct validity study, the Nomological Networking, provokes the building and the expansion on the construct of RF. Furthermore, the methodology for this thesis involves utilizing two very distinct procedural processes.



### CHAPTER 3: MANUSCRIPTS

This chapter provides an overview on each of the manuscripts and how they are connected to develop this thesis. Complete manuscripts then follow.

**A Review of Reflective Functioning Measure for Evaluating Relationship-Based Parenting Programs** (DeRoo, M., Rempel, G., Fraser, S., & Wong, G. 2016 for submission to *Infant Behaviour & Development*).

To date, there are no resources available that offer detailed information regarding the strengths, weaknesses, and psychometrics for RF measures available in the field of psychology. Thus the research question: *What RF measures are available in the field of psychology?* The first manuscript reports the findings of a literature review of the RF measures for adults and/or parents over the age of 18. This systematic literature review was conducted in March of 2016, and involved searching 7 databases, 4 journals and reaching out to experts in the field to extract literature examining RF. Once studies were obtained and placed into Zotero (a data collection research resource), studies were merged to eliminate duplicates and/or further reviewed the article to determine if it would be included in the review. To carry out a thorough review, enhance consistency and improve transparency, the PRISMA (Moher et al., 2009) procedural guidelines and flow chart were utilized in the reporting of this review.

Through this knowledge synthesis, 11 RF measures were identified and then the second research question was addressed: *Which measure is most appropriate to utilize in evaluating the COS-P?* Alongside the features of RF measures within the literature, 3 factors were carefully considered: 1) time, 2) cost, and, 3) applicability. Time and cost referred to professional training, administration, scoring and coding required by RF

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measures, whereas, applicability represented the specific population the RF measure was designed for. After reflecting on the characteristics of each RF measure and taking into account these considerations, it appeared that the PRFQ-18 was an appropriate assessment to evaluate the COS-P but with further psychometric testing.

### **Examining the Construct Validity of the 18 Item Parent Reflective Functioning**

**Questionnaire** (De Roo, M., Rempel, G., Wong, G., & Fraser, S., 2016 for submission to *Assessment*)

The second manuscript reports a psychometric study that considers the factor structure, and the discriminant and construct validity of the PRFQ-18. To begin with, the third research question asked: *Does the PRFQ-18 measure three different characteristics of reflective functioning?* To answer this, 317 Canadian parents between the ages of 20 and 60 with at least one child under the age of 12 were recruited through the SurveyMonkey's Survey Audience. After participants completed the PRFQ-18, the data underwent a confirmatory factor analysis. Results demonstrated that the PRFQ-18 measures three distinct characteristics of RF. To further investigate the PRFQ-18 in relation to related concepts, participants also completed four measures to address the fourth research question: *Are there theoretically meaningful relationships between the PRFQ and the Medical Outcome Study Social Support Survey, Parenting Sense of Competence Scale, Perceived Stress Scale, and Parenting Coping Scale?* Bivariate correlations conducted in SPSS identified that the PRFQ-18 has theoretically meaningful correlations with parental competence, parental coping, stress and social support. The second manuscript was submitted to the *Assessment* journal that focuses on the test development and validation of clinical measures.

**Manuscript 1: A Review of Reflective Functioning Measure for Evaluating  
Relationship-Based Parenting Programs**

Abstract

Reflective Functioning (RF), also known in the literature as mentalization, is an important intergenerational human capacity to understand the mental states of one self and of others. Rather than an innate ability, RF is thought to be shaped in a child's social understanding of interactions with primary caregivers and siblings. Parent RF serves the parent-child relationship as parents reflect on their own and their child's mental states; therefore, RF has become a core component for relationship-based parenting programs. Programs like Circle of Security-Parenting (COS-P) aim to help caregivers understand their child's behaviour and the attachment-related needs being communicated; and how to be attentive to their responses to their child's behaviour and their reactions to challenging behaviour. The purpose of this paper is to review RF measures existing in the field to date to determine the most suitable pre- and post- RF measure to evaluate whether parental RF shifts after completing COS-P. Eleven RF measures were identified and key information about their characteristics, scoring, reliability, validity, strengths and weakness are discussed. The RF measures were characterized in one of three ways: 1) gold standard measures, 2) "booming" measures, and, 3) "one-hit" measures. Further work to validate RF measures is needed to ensure that we have rigorous tools to measure effectiveness of parenting programs that are meant to enhance parent RF.

*Keywords:* Reflective functioning, Circle of Security, mentalization, attachment, systematic literature review

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### **A Review of Reflective Functioning Measures for Evaluating Relationship-Based Parenting Programs**

Growing interest in measuring Reflective Functioning (RF), also known in the literature as mentalization, was catalyzed by Fonagy, Steele, Steele, Moran, and Higgitt (1991) when they discussed Reflective-Self Functioning in light of the Adult Attachment Interview. In particular, there is more research examining the impact of parent-child programs on parental RF (PRF). This emerging interest has instigated the need for and the expansion of RF measures. Despite this development, no published literature to date provides a synthesis of the RF measures utilized in research. The purpose of this paper is to identify RF measures being utilized in the field of psychology and systematically assess them according to the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) (Moher et al., 2009).

#### **Reflective Functioning**

The concept of RF, developed by British psychologist Peter Fonagy and colleagues (Fonagy et al., 1991; Fonagy, Target, Steele, & Steele, 1998) characterizes the intergenerational transmission of mental states and its influence on adult life. Rather than an innate ability, RF is thought to develop from a child's interactions with primary caregivers (Fonay, Gergely, & Target, 2007; Fonagy et al., 2016; Fonagy et al., 1991; Fonagy et al., 1998) and siblings (Fonagy et al, 2007; Fonagy et al.,1991) along with other interrelating influences such as social interactions, family structure, family size, and parenting quality (Fonagy et al., 2007) relationships, internal emotional states and environmental responses (Srinivasan, 2005). A key characteristic of RF is an individual's internal capacity to *recognize* and *translate* one's own and another's mental states such as

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feelings, thoughts, beliefs and desires which can help one to *identify* and *understand* the intentions of one's own and other's behaviour (Fonagy et al., 2016; Fonagy et al., 1991; Fonagy et al., 1998,). The capacity to reflect on the mental states of oneself and others leads to an individual's capacity for adaptability in terms of choosing how to respond (Spinelli, 2009).

RF is an important developmental neurological human function involving both a self-reflective and interpersonal component (Fonagy et al., 1991). These two components are developed through experiences, meaning making, and social and emotional information that is gathered and stored to create an internal organization for how to understand one's own and other's feeling and behaviours (Fonagy et al., 1991; Fonagy et al., 1998). These components provide individuals with the capacity to distinguish between manifestation and reality, predict behaviour, enhance interpersonal communications, encourage and preserve attachment security (Fonagy et al., 1998), self-monitor, control impulses and regulate affect (Fonagy et al., 2007), self-organize and enhance the parent-child relationship (Fonagy et al., 1998).

Regarding the parent-child relationship, RF enables parents to reflect on their own and their children's mental states, thereby increasing their sensitivity to what is occurring in the interaction (Slade et al., 2005). The concept of RF in parenting sets parents up for "good enough" parenting (Powell, Cooper, Hoffman, & Marvin, 2014); provided their reflection on their responses to their mental states and their child's mental states serves their relationship with their child(ren). The goal is not perfect parenting; rather the goal is to reflect on themselves as a parent and their interactions with their children to enhance the parent- child relationship. RF has also been linked with parent–infant attachment

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(higher RF scores are associated with more securely attached relationships) (Slade et al., 2005) and more optimal parenting behavior (Grienenberger, Kelly, & Slade, 2005).

Specifically, maternal RF has been shown to influence both the mother and child attachment style (Grienenberger et al., 2005), as well as influence a transmission process from a mother's account of her own attachment experiences to how she thinks and feels about her child (Slade, Belsky, Aber, & Phelps, 1999). To enhance maternal RF, Slade (2006) argues RF is changeable by means of parent-child programs. These programs include *Minding the Baby* (Slade, 2006), *Family Minds* (Bammens, Adkins, & Badger, 2015) and *Circle of Security* (Gray, 2015; Huber, McMahon, & Sweller, 2015a; Huber, et al. 2015b; Mercer, 2015).

### **Circle of Security**

The Circle of Security intervention (COS-I) (Marvin, Cooper, Hoffman, & Powell, 2002), is based on Ainsworth's concepts of a Secure Base and a Haven of Safety (Ainsworth et al., 1978) and research in child development, attachment and parent-child interactions; especially, emotional regulation, states of mind, affect, and *RF*. COS-I is a twenty-week program designed to promote parent-child attachment security by: 1) increasing parent/caregiver sensitivity and responsiveness to their children, 2) supporting their ability to perceive and understand their own and their child's behaviours, thoughts and feelings, and, 3) assisting them to understand how their childhood experiences affect their parenting (Marvin et al., 2002). Further goals of COS-I include creating a safe environment for parents to be vulnerable about their parenting experiences, applying attachment theory to everyday parenting, and developing observational, reflective dialogue and empathy skills in the weekly group sessions (Marvin et al., 2002). Typically

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COS -I trained facilitators work with up to six parents/caregivers; parents are videotaped interacting with their child. The videotaped sessions are used to provide feedback to parents as a means of facilitating RF development.

An 8-week version of the Circle of Security Parenting (COS-P) program was introduced in 2007. This manualized DVD-based program (Cooper et al., 2009) is based on the same theoretical foundations and goals as the 20-week COS-I; aiming at increasing PRF, developing an understanding of child attachment needs, and building emotional regulation skills in caregivers (Cooper et al., 2009). The main difference is that in the 20-week program the facilitator uses key video clips of each parent and their child to depict “under-utilized strengths” and “the linchpin issue” while in the 8-week program parents build their RF and empathy for their child through facilitated dialogue based on video footage of other parents and their children (Cooper et al., 2009); all parents view the same video depictions of parent-child interaction that is facilitative or problematic. The 8-week COS-P guides caregivers in interpreting their child’s behaviour and the attachment-related need being expressed. Parents focus on their reactions to their child’s behaviour and gain insight into responding in ways that prioritize the relationship. COS-P is manualized and requires four days of training for facilitators; it is a more scalable program than COS-I.

Current research on the COS-I and COS-P program recognizes the significance and importance of these intervention programs. The COS-I increases RF, caregiver’s positive representations of themselves as parents, levels of attachment security (Huber et al., 2015b), child protective factors and internalizing and externalizing problems (Huber et al., 2015a). The COS-I also improves discipline practices, coping strategies (Rostad,

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2014) and attachment caregiving patterns (Hoffman, Marvin, Cooper, & Powell (2006); Marvin et al., 2002). Ramsauer et al. (2014) examined the COS-I and infant attachment security in mother with mental illness. Research on the 8-week program is limited. In a case study, COS-P was shown to improve a father's competence, decrease his parenting stress, strengthen parental alliance between him and his estranged partners and improve his perceptions of their child (Pazzagli et al., 2014). The COS-P improves parental emotional regulation, substance abuse, attachment insecurity, and influences parenting practices, including discipline (Horton & Murray, 2015). Furthermore, participation in COS-P has been shown to reduce depressive symptoms and stress in parents, and to increase parent self-efficacy and competence related to challenging child behaviours (Gray, 2015).

On the other hand, some researchers have identified mixed results in regards to the COS-I and COS-P improving RF. In a study examining and measuring RF by means of the Circle of Security Interview, a narrative-based interview developed by the COS originators that is coded as per the Reflective Functioning Scale (RFS) coding system (Fonagy et al., 1998), Huber et al. (2015a) found RF changes in caregivers with low RF scores prior to the COS-I; whereas, Rostad (2014) did not find significant changes (score difference of .05-.15). Similarly, a single study measuring RF in the COS-P noted a lack of change in RF (Gray, 2015).

Although researchers have identified benefits of COS-I and COS-P, only one study has identified substantial growth in RF (Huber et al., 2015a). Given that this is the primary goal of the COS-P program, further conceptually rigorous research in regards to RF changes in both the 20 and 8 week COS program is urgently needed.



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### **Research Objective**

The aim of the COS-P is to improve parent-child attachment by building PRF including how to interpret a child's behaviour and the attachment-related needs being expressed, how to be aware of their own reactions to a child's behaviour, and how to respond to challenging behaviour (Cooper et al., 2009). Since RF is a desired outcome of COS-P, pre- and post- intervention RF measures become an essential aspect of generating research evidence of program effectiveness and to support ongoing program evaluation. To date, a comprehensive review of the research literature for studies that utilized RF measures has not been published. As such, the objective of this review was to contribute further understanding by critically reviewing, examining and evaluating RF measures in the field of psychology through a Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) (Moher et al., 2009). Herein, we examine characteristics, reliability, validity, strengths and weaknesses of each RF measure to determine the most suitable pre- and post- RF measure to evaluate relationship-based parenting programs. This review is significant to practitioners assessing RF in adults and caregivers and those who are implementing parenting programs. Furthermore, this review provides a synthesis of RF measures currently described in extant literature.

### **Methods**

A systematic literature review was approach to knowledge synthesis was used to in order to thoroughly seek and draw together information from quantitative, qualitative and mixed method studies (Grant & Booth, 2009). To conduct a systematic literature review, this paper follows the PRISMA (Moher et al., 2009) procedural guidelines. The

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PRISMA consist of a 27- item checklist and a four phase flow diagram to describe the search strategy for researchers reporting systematic reviews.

### **Inclusion and Exclusion Criteria**

Inclusion criteria for this review includes studies examining RF in adults at the age of 18 years or older and/ or parents. All studies included in this systematic literature review were written in the English language and conducted between the dates of 1990-2016. This ensured all research conducted since the inception of the RF was included. Included in the review are peer reviewed publications, thesis documents, dissertations, abstracts, posters, in-progress studies, published and unpublished studies. Since the COS approach specifically aims to enhance PRF, exclusion criteria involved any study measuring RF in children and adolescents.

### **Search Strategy**

A review of the literature was conducted by searching databases and journals for articles investigating RF in adults. The search strategy included the databases of Science Direct, PsycInfo, PsycARTICLES, SocIndex, ERIC, Academic Search Complete and Sage between the years of 1990-2016. In addition, the search incorporated the journals: Psychoanalytic Psychology, Attachment & Human Development, Infant Mental Health, and Journal of the American Psychoanalytic Association between the years of 1990-2016. The search strategy was conducted in March of 2016.

The primary search terms included: RF scale, RF, parent development interview, adult attachment interview, RF questionnaire, parent RF, parent RF rating scale, circle of security, mentalization questionnaire, brief RF interview, self-reflection and insight scale, RF AND attachment, and mentalization AND RF. All search terms were applied to all

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fields in the search box; however, any search term successfully containing over two thousand hits were reduced to searching within the abstract and/or keywords and/or title parameters. This resulted in search terms applied to all fields in PsycInfo, PsycARTICLES, SocIndex, ERIC, Academic Search Complete, Sage Psychoanalytic Psychology, Infant Mental Health and Journal of the American Psychoanalytic Association, and abstract and/or keywords and/or title parameters for Science Direct and Attachment & Human Development. Furthermore, the search strategy also included cross-referencing the reference lists for any potential articles and contacting professional experts in the field to obtain additional published, unpublished or in progress articles.

### **Data Collection Process, Data Items, and Data Extraction**

Retrieved articles were first screened via title and abstract for eligibility criteria. Those meeting the standards were placed in ZOTERO (n.d.) (a data collection research resource). If titles and/or abstracts remained unclear as to their eligibility, the full article was obtained and reviewed. Next, all duplicates were merged and eliminated. The remaining articles were read in their entirety and assessed based on the eligibility criteria. Articles not meeting the eligibility criteria were eliminated. Articles that met the eligibility criteria were included in the literature review. Data items considered in the data collection included eligibility (meeting criteria), participants (parents and/or adults over the age of 18) and study design (quantitative, qualitative and mixed method studies assessing RF). Data extracted included the characteristics, scoring processes, reliability, validity, and strengths and weaknesses of the employed RF measure.

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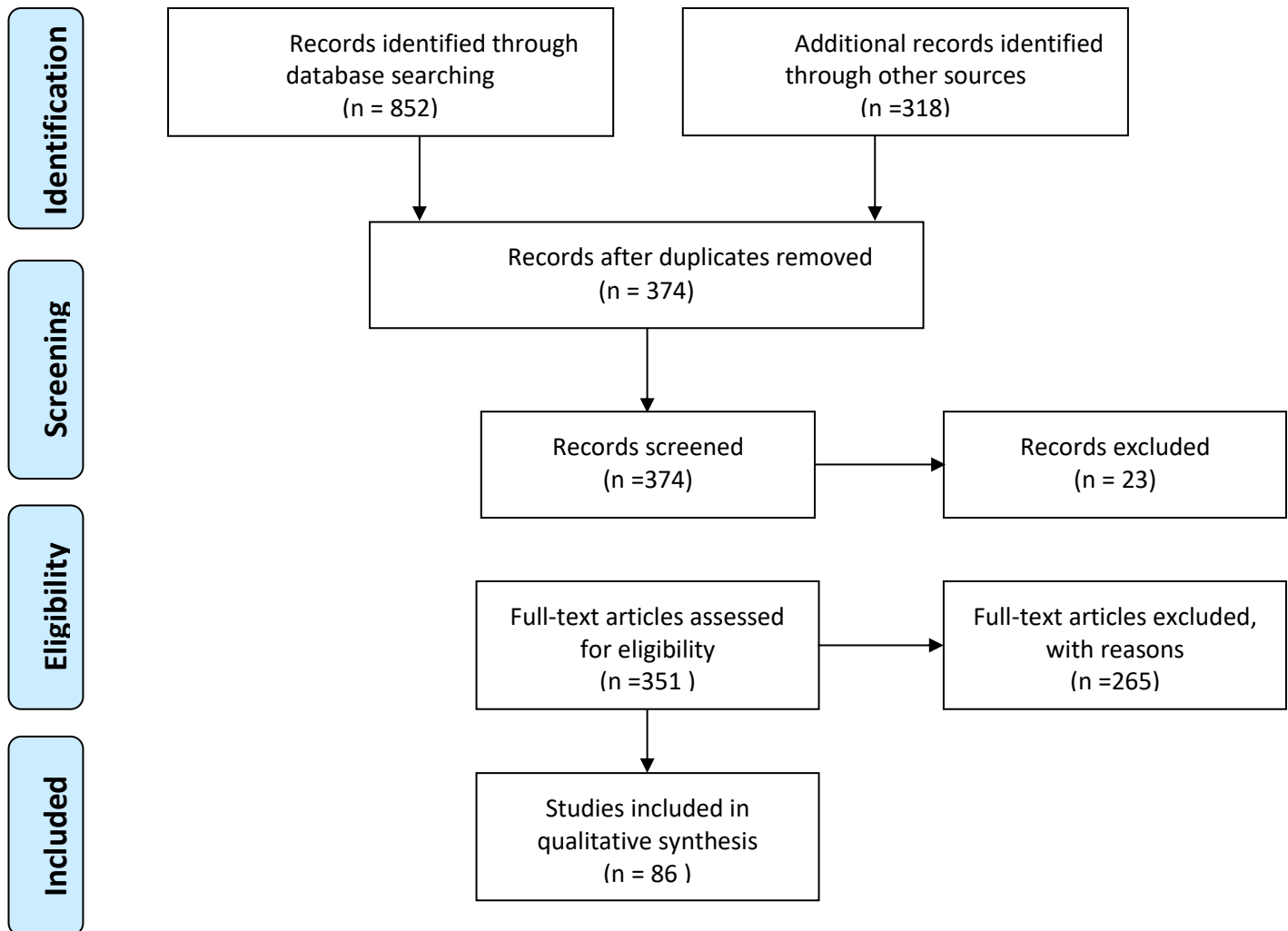
### **Risk of Bias**

To reduce bias, all studies implementing RF measures towards adults were included in the analysis. Furthermore, this review not only included published studies, but thesis documents, dissertations, abstracts, posters, in-progress studies, published and unpublished studies as well.

### **Results**

To ensure a comprehensive search, 14 different search terms were used in seven databases and four selected journals. Search terms applied to each database and journal yielded a range of hits (0-1593); supporting the inclusion of multiple and varied sources. The search strategy identified 1170 potential records for review. Of these, 796 records were excluded due to duplication leaving 374 articles to be screened via title and/or abstract. Next, 23 books and 265 articles were further excluded for not meeting the inclusion criteria. This resulted in the inclusion of 86 articles (See Appendix B).

Assessment of the 86 articles resulted in the identification of 11 RF measures that were categorized as: 1) gold standard measures, 2) booming measures, or, 3) one-hit measures. These measures are presented according to three themes: 1) gold standard measures, 2) booming measures, and, 3) one-hit measures.

Figure 1: *PRSIMA Flow Diagram of the Article Selection Process*

### Gold Standard Measures

The term gold standard is used to identify measures that have been repeatedly utilized in research. Data extraction identified two RF measures meeting this definition; the Reflective Functioning Scale (Fonagy et al., 1998) and the Parent Development Interview (Aber et al., 1985 as cited in Slade et al., 1999; Slade et al., 2005).

**Reflective functioning scale.** The RFS (Fonagy et al., 1991; Fonagy et al., 1996; Fonagy et al., 1998) is a multi-item rating scale to measure RF in conjunction with the

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Adult Attachment Interview <sup>1</sup>(AAI; George, Kaplan & Main, 1985). To assess the quality of an individual's accounts of his or her own mental states and those of others, the RFS consists of twenty-five items across four domains: a) awareness of the nature of mental states, b) explicit effort to tease out mental states, c) recognizing developmental aspects of mental states, and, d) mental states in relation to the interviewer (Fonagy et al., 1996; Fonagy et al., 1998). The process of completing the RFS includes a trained interviewer presenting twenty AAI questions, followed by a certified coder who rates each of the interviewer's responses using the RFS (Fonagy et al., 1996; Fonagy et al., 1998). Coders require a particular 3-day reliability training for the RFS (Fewell, 2006). The AAI takes approximately one hour to complete (Bell-Thomson, 2014); however, the length of time required to code the RFS was not specified in the literature reviewed.

***Scoring, reliability and validity.*** The RFS consists of eight demand questions that must be scored and fifteen permit questions that are not scored and so hold less weight and may or may not contribute to overall rating (Fonagy et al., 1998). The coder rates each demand question on an eleven point grading scale from -1 (negative RF) to 9 (exceptional RF) to determine a single RF score (Fonagy et al., 1996; Fonagy et al., 1998).

The reliability and validity of the RFS is shown in several studies. In preliminary studies of the RFS, the interrater reliability is shown to be good in the London Parent-

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<sup>1</sup> The AAI (George et al., 1985) is a semi- structured twenty-question interview to assess an individual's state of mind pertaining to attachment based on experiences in early attachment relationships. The AAI invites individuals to share an assortment of emotions, childhood experiences and perspectives, and effects of childhood on their personality. The process of measuring the AAI involves a certified interviewer administering the AAI; taking approximately forty- five to ninety minutes to complete.

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Child Project (mothers .70; fathers .75), and excellent in the Prison Health Care Centre Study (.91) (Fonagy et al., 1998) and the Cassel Hospital Study (.91) (Fonagy et al., 1996). Further studies have also shown good interrater reliability from .71 (Taubner, et al., 2013) to .86 (Bouchard et al., 2008). Intraclass correlations coefficient (ICC) scores are found to be good; findings include .70 (Taubner, et al., 2013), .74 (Jesse, 2012), .79 (Diamond et al., 2014), .84 (Ekeblad, Falkenström, & Holmqvist, 2016), .80 (Ensink, Normandin, Plamondon, Berthelot, & Fonagy, 2016), .86 (Levy, et al., 2006), .79-.89 (Esborjn et al., 2013) and .98 (Ranawat, 2008); indicating excellent reliability.

Studies have also demonstrated construct validity of the RFS by discovering negative correlations between RF scores and demographic characteristics, ethnic background, verbal intelligence, education social class (Fonagy et al., 1991; Fonagy et al., 1998), socioeconomic status (Fonagy et al., 1991; Fonagy et al., 1998; Jesse, 2012), age (Fewell, 2006) gender (Esbjörn, et al., 2013; Jesse, 2012) and maternal education (Rosso, Viterbori, & Scopesi, 2015). Additionally, negative connections have been discovered between RFS scores and depression (Taubner, Kessler, Buchheim, Kächele, & Staun, 2011) and parental behaviour qualities including communication, sensitivity, emotional expression, mood, encouragement and autonomy (Mays, 2014). Discriminant validity has been identified among negative correlations between the RFS and the Epstein's Mother-Father-Peer-Scale, the Eysenck Personality Questionnaire, the Sources of Self Esteem Inventory (Nimrody, 2008) the Emotional Dysregulation Index (Bell-Thomson, 2014); the Behavioural Dysregulation Index (Bell-Thomson, 2014; Taubner et al., 2011), the General Severity Index (GSI) of symptoms (Taubner et al., 2011) and the Caregiving Behaviour Quality Scale (Mays, 2014); demonstrating that these variables do

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not interact with RF; thus not impacting RFS scores. To further support the validity, positive correlations have been revealed between the RFS and the AAI (Fonagy et al., 1991; Fonagy et al., 1996; Fonagy et al., 1998; Jesse, 2012; Lowyck et al., 2009; Rosen, 2013; Rosso et al., 2015), the Object Relations Inventory (Lowyck et al., 2009), Depressive Specific Reflective Functioning Scale, Beck Depression Inventory (BDI) (Ekeblad et al., 2016) Security of Attachment (Fewell, 2006) and Stress for Parenting Adolescents (Bergeron, 2010); indicating that the RFS actually measures RF.

*Strengths and weaknesses.* The RFS is a widely used RF measure. The RFS is utilized in numerous studies examining RF among undergraduate students (Bell-Thomson, 2014), violent offenders (Taubner et al., 2013), survivors of childhood trauma (D'Angelo, 2006), parents (Bergeron, 2010; Jesse, 2012; Mays, 2014; Rosso et al., 2015; Taubner et al., 2011), parents with children with autism (Rosen, 2013; Twomey, 2012), and mothers with a history of abuse (Ensink et al., 2016) and who have children at risk for child abuse and have violence-related post-traumatic stress (Schechter et al., 2005) and parents experiencing anxiety (Esbjörn et al., 2013). Additionally, the RFS is illustrated in studies measuring RF in patients with borderline personality disorder (BPD), psychosis (Levy et al., 2006; MacBeth, Gumley, Schwannauer, & Fisher, 2011), narcissistic personality disorders (Diamond et al., 2014; Fonagy et al., 1996), depression (Ekeblad et al., 2016; Fischer-kern et al., 2013; Taubner et al., 2013), panic disorders with or without agoraphobia (Graf, 2009), bulimia nervosa (Mathiesen et al., 2015; Pedersen et al., 2015; Pedersen et al., 2012), mood disorders (Reading, 2013), obsessive-compulsive disorder (Kullgard et al., 2013), and personality disorders (Antonsen et al., 2015; Lowyck et al., 2009; Chiesa, & Fonagy, 2014; Reading, 2013). Furthermore, the



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RFS is implemented in studies looking at RF in clinical supervision models (Hartmann et al., 2015), clinical supervisors (Ranawat, 2008), psychoeducation program for foster and adoptive parents (Bammens et al., 2015), brief psychotherapies (Karlsson & Kermott, 2006; Katzow, 2011), psychotherapy processes (Hörz-Sagstetter, Mertens, Isphording, Buchheim, & Taubner, 2015; Rizzo, 2007); and in the COS-I program (Huber et al., 2015a; Huber et al., 2015b). Lastly, the RFS is shown to be utilized with the Parent Development Interview (Jacobs, 2014), the Working Model of the Child Interview (Zeanah & Benoit as cited in Schechter et al., 2005) and the Pregnancy Interview (Slade et al., 2003 as cited in Daley, 2013). This diverse range of research utilizing the RFS provides evidence that the RFS is a reliable, valid, and a gold standard RF measure in the field of psychology.

However, the RFS procedure requires at least an hour to administrate the AAI (Bell-Thomson, 2014) and demands individuals to complete training for both the AAI and the RFS (Fonagy et al., 1991; Fonagy et al., 1996; Fonagy et al., 1998); making the process costly and time-consuming. Additionally, some limitations of the RFS have been identified. Bell-Thomson (2014) questions the context-dependent nature of the RFS as negative correlations were found between RF scores and effortful control, psychological mindedness, emotional metacognition and trauma. This argument is supported in studies finding no correlations between RF and family dysfunction (Fewell, 2006) and insignificant connections between RF and the BDI and GSI (Taubner et al., 2011). Even though researchers (Bell-Thomson, 2014; Fewell, 2006; Fonagy et al., 1991; Fonagy et al., 1996; Fonagy et al., 1998; Taubner et al., 2011) have uncovered some limitations of the RFS, the strength of its psychometric properties earns its gold standard rating in this

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review. It is a fitting RF measure to evaluate the COS-P. That being said, costly expenditures and time requirements need strong consideration.

**Parent Development Interview.** The PDI (Slade et al., 1999; Slade et al., 2005) originally developed by Aber et al. (1985), is an interview measure to assess parental representations of the child and the parent-child relationship including joy/pleasure, anger, guilt and separation distress (Slade et al., 1999). The PDI involves the interview being audiotaped (Capstick, 2008), transcribed and then coded for RF (Dollberg, Feldman, & Keren, 2010). The PDI is has been coded using the Parent Development Interview Coding System (PDI-CS) (Slade et al., 2004 as cited in Slade et al., 1999). The PDI-CS is coded along 2 dimensions (maternal affective experiences and state of mind). Particular maternal affective experience subscales are rated on a 9 point scale (low scores indicating denial or downplaying emotions experiences and high scores implying intense emotional experiences), while other subscale items such as anger, separation distress and guilt are rated on a 5 point scale (Slade et al., 1999). State of mind subscales (coherence and richness) are scored on a 3 point scale (high, medium & low) (Slade et al., 1999).

Currently, the PDI is coded using the Fonagy et al. (1998) Reflective Functioning Scoring Manual Version 5 for use with the Parent Development Interview (Slade, Bernbach, Grienberger, Levy, & Locker, 2005). This version utilized in studies (e.g., Capstick, 2008; Grienberger, 2002; Jacobs, 2014; Slade et al., 2005) examines RF across 4 factors: 1) awareness of the nature of mental states, 2) the ability to tease out underlying behaviour of mental states, 3) identifying developmental aspects of mental states, and, 4) the mental states in relation to the interviewer. To determine an interviewee's RF score a trained coder rates interview passages on an eleven point Likert

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scale from -1 to 9 (Capstick, 2008; Grienenberger, 2002; Jacobs, 2014; Slade, et al., 2005). Current research indicates an RF score of one indicates an absence to detect mental states; three implies a limited capacity to acknowledge mental states; five suggests the presence of basic RF capacity (Suchman, DeCoste, Leigh, & Borelli, 2010). The PDI takes approximately 2 hours to administer (Dollberg et al., 2010); however, no literature implementing the PDI speaks to the formal training and timing requirements of the coding procedure. Two of the authors of this manuscript (GR and GW) have recently been trained by Arietta Slade. Registration to the 3-day training course ‘Coding Parental Reflective Functioning on the PDI’ offered by the PDI Training Institute at the City College of New York cost \$1100 USD. All trainees are provided instruction and practice on coding over the three days; following training, participants are assigned a tutor from the PDI training team. Five practice interviews are provided followed by ten interviews which are scored independently. Criteria for reliability is 75% concordance with individual variable scores and 80% with overall RF scores. Each interview can take up to 2 hours to score; and consultation with mentors provided is typically 4 hours. The time commitment and cost of training is extensive.

A preliminary study (Slade et al., 1999) of the PDI identifies good reliability within the three factors; .84 (joy/pleasure), .82 (anger) and .68 (guilt-separation distress); indicating internal consistency. Reliability for the Addendum to Fonagy, Target, Steele, & Steele RF Scoring Manual with the PDI is demonstrated with ICC of .87 (Grienenberger, 2002; Slade et al., 1999; Slade et al., 2005) and interrater reliability scores of .80 (Jacobs, 2014). The construct validity of the PDI is supported in studies demonstrating negative correlations between RF scores and disrupted affective

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communication (Grienenberger et al., 2005; Sayre, 1991) and the gender of the child (Jacobs, 2014). The PDI scores are demonstrated to be correlated with the AAI (Slade et al., 1999; Slade et al., 2005), PI subscale items, the Maternal Behavior Coding System (Marvin & Britner as cited in Sayre, 1999) and the Strange Situation Procedure (Sayre, 1999; Slade et al., 2005); illustrating discriminant validity of the PDI and its ability to measure RF. Further validation of the PDI is seen in studies examining RF in parents (Capstick, 2008), mothers (Sayre, 1999; Slade et al., 1999; Dollberg et al., 2010), mother-child dyads (Jacobs, 2014; Slade et al., 2005), first time mothers (Grienenberger, 2002; Grienenberger et al., 2005) and parents of children with cerebral palsy (Sayre, 1999).

Due to several limitations of the PDI, Slade, Aber, Berger, Bresgi, and Kaplan (Personal communication, A. Slade, January 2016) created revised versions (full version (PDI-F); short version (PDI-RS)) to be less age specific, (parents with children from infancy to adolescence) and apply interview questions more specifically to parental representations. The purpose of the PDI-F (forty items) and the PDI-RS (twenty-nine items) is to assess individual perceptions of themselves as parents, of their child(ren), their relationships with their child(ren), and of the emotional aspects of parenting (Personal communication, A. Slade, January 2016). In addition, the PDI-F and the PDI-RS evaluate parent's capacity to reflect upon their own childhood experiences. Similar to the PDI, the process of measuring RF involves individuals answering either the PDI-F or PDI-RS questions that are presented by a qualified interviewer and then coded utilizing the Addendum to Fonagy, Target, Steele, & Steele RF Scoring Manual (Slade, Bernbach, Grienenberger, Levy, & Locker, 2015). The PDI-RS has been revealed to be scored using the PDI-CS (Stacks et al., 2014). This audio taped (Pajulo et al., 2012) or video-taped

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interview process takes approximately one and a half hours to complete (Bain, 2014) and requires coders to complete a training course and follow-up coding feedback (Slade, personal communication, October 2014). The two-day training program involves the completion of 10 practice interviews and 10 coding procedures (Stover & Kiselica, 2014). Time allocation for coding is not identified in the literature.

**Scoring, reliability and validity.** The PDI-F and PDI- RS scoring process uses the PDI-CS (Stacks et al., 2014) or the Addendum to Fonagy, Target, Steele, & Steele RF Scoring Manual (Slade et al., 2015) to determine an overall RF score. The PDI-F in collaboration with the Addendum to Fonagy, Target, Steele, & Steele RF Scoring Manual (Slade et al., 2015) is shown to contain good interrater reliability with ICC of .75 (Stover & Coates, 2015; Stover & Kiselica, 2014) and .80 (Poznansky, 2010). No studies were found implementing the PDI-CS alongside the PDI-F. Studies have identified that the PDI-F is independent of the child's age, father education and father-child contact (Stover & Coates, 2015); validating that these variables do not affect RF scores. Construct validity is identified in negative associations between RF scores and the gender of the child (Stover & Coates, 2015) and parenting behaviors (Stover & Coates, 2015); highlighting that the PDI-F is able to measure RF independently from these variables. Additionally, discriminant validity of the PDI-F is demonstrated through positive correlations between RF scores and attachment patterns from the AAI (Poznansky, 2010). Further validation of the PDI-F is highlighted in studies assessing RF in first time mothers (Poznansky, 2010), fathers (Stover & Coates, 2015; Stover & Kiselica, 2014).

In regards to the PDI-RS, studies alongside the Addendum to Fonagy, Target, Steele, & Steele RF Scoring Manual (Slade et al., 2015) show good interrater reliability

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with ICC of .50 (Suchman et al., 2010), .76 (Huth-Bocks, Earls, Muzik, Beeghly, & Stacks, 2014; Stacks et al., 2014.), .80 (Sadler et al., 2013) and .83 (Sleed, Baradon, & Fonagy, 2013); indicating consistent construct factors. Additionally, good interrater reliability of the PDI-RS along with the PDI-CS is found with ICC of .76 (Stacks et al., 2014). Construct validity for the PDI-RS is demonstrated when the PDI-RS scores are negatively correlated with gender and child behaviours (Ordway, Sadler, Dixon, Close, Mayes, & Slade, 2014; Suchman et al., 2010); providing evidence that the PDI-RS is not influenced by these variables. Additionally, the PDI-RS is found to positively correlate to PI subscale items; demonstrating its ability to measure RF and discriminant validity. Further validation of the PDI-RS is illustrated in studies examining RF in mothers with childhood history of maltreatment (Huth-Bocks, 2014), maternal substance abuse (Perry, Newman, Hunter, & Dunlop, 2015; Suchman et al., 2010), parenting intervention programs (Sadler et al., 2013; Sleed et al., 2013), parent-infant dyads (Ordway et al., 2014), and mothers with prenatal PTSD and/or difficult childhood experiences (Stacks et al., 2014).

***Strengths and weaknesses.*** The PDI is a widely used measure to assess RF; demonstrating it is a gold standard measure in the field of psychology. From this foundation, the PDI-F and PDI-RS in collaboration with the PDI-CS (Slade et al., 1993 as cited in Slade et al., 1999) or the Addendum to Fonagy, Target, Steele, & Steele RF Scoring Manual (Slade et al., 2015) have been developed to create a more effective PDI RF measure. It is evident that the PDI has developed and established credibility, reliability and validity; supporting the revised versions. In addition, the parental focus of

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the PDI-F and the PDI-RS is appropriate for parent-child intervention programs such as the COS-P.

On the other hand, limitations have also been identified. Given the time investment (Dollberg et al., 2010) and training and coding requirements (Slade, personal communication, October 2014), the PDI-F and PDI-RS are time consuming and expensive. Taking into consideration the narrative based component of the PDI-F and PDI-RS, these RF measures are dependent on language; therefore, creating rigidity RF scores and limiting the populations to which it can be applied. Even though the PDI has demonstrated strong reliability and validity, there is still a lack of research examining the PDI-F and the PDI-RS. Overall, the PDI-F and the PDI-RS are potentially useful RF measures to evaluate the COS-P; however, psychometrics of the revised measurements calls for further research, and time and cost requirements need consideration.

### **Booming Measures**

The term booming measures refers to RF measures that are expanding in development. In this review, the RFQ (Fonagy & Ghinai, 2008 as cited in Mouton-Perkins et al., 2011) and the PRFQ (Luyten, et al., 2009) were identified as booming measures.

**Reflective functioning questionnaire.** The RFQ, (as cited in Mouton- Perkins, et al., 2011) originally developed by Fonagy and Ghinai in 2008, is a self- report measure to assess RF across two domains (internal- self and internal- other). The preliminary measure (RFQ18) is shown to have good internal consistency with reliability scores of .82 (RFQ18TOTAL), .87 (RFQ18SELF) and .76 (RFQ18OTHER) and positive connections between RF, and empathy and mindfulness (Vospernik, 2014). Additionally,

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discriminant validity of the RFQ18 is demonstrated in negative correlations with eating disorders, disability, alexithymia, BPD and general psychopathology (Vospersnik, 2014). Following the development of the RFQ18, a pilot study of the RFQ46 was employed; however, weakness in the reliability of the internal-other factor was discovered. To address this, Moulton-Perkins et al. (2011) added eight new subscale items and a seven-point Likert scale to create the RFQ54.

**Scoring, reliability and validity.** The RFQ54 is a self-report measure; individuals ranking each RFQ question on a seven point rating scale. No literature describes the details of the rating scale. Recent studies (Carlisle, 2014; Moulton-Perkins et al., 2011; Vospersnik, 2014) indicated the RFQ54 takes approximately fifteen to twenty minutes to complete. In terms of reliability, internal consistency of the RFQ54 is shown to be good with scores of .86 (RFQ54TOTAL), .63 (RFQ54SELF) and .75 (RFQ54OTHER) (Vospersnik, 2014); demonstrating reliability among factor structure. Weak relationships between RF, and pathological vulnerability and adaptive narcissism (Vospersnik, 2014) supports the RFQ54 construct validity and the ability to be independent of these variables. Further validation of the RFQ54 is identified in studies assessing RF in individuals with narcissism (Vospersnik, 2014), and antisocial and borderline personality disorder (Carlisle, 2014) and is currently being examined in populations with BPD and eating disorders (ED; Moulton-Perkins et al., 2011).

**Strengths and weaknesses.** The RFQ54 is a cost effective self-report RF measure. In addition, it is easily administrated; thus reducing restrictions and being open to diverse populations. Given that literature identifies a link between narcissism and problems with the self and view of others (Bender, Morey, & Skodol, 2010), a weak relationship



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between narcissism and RF (Vospersnik, 2014) study provides evidence that the RFQ54 needs improvement. Currently it is however still being developed and tested (Moulton-Perkins et al., 2011). Overall, the psychometrics of the RFQ18 and the current testing of the RFQ54 indicate that these RF measures are booming in the field of psychology. This suggests a possibility to utilize these RF measures to evaluate the COS-P; however, further psychometric evidence is needed to justify its use.

In addition, it is important to note that following this systematic literature review Fonagy et al. (2016) reported a new RFQ 8 item self-report measure based on a 3 point Likert scale. Results in the three part study found evidence to support a two factor structure (RFQ\_Uncertainty (RFQ\_U) and RFQ\_Certainty (RFQ\_C)) and factor invariance among clinical and non-clinical populations. Internal consistency for the RFQ\_U and RFQ\_C was good with scores ranging from .73 to .77 for the clinical sample and .54 to .78 for the non-clinical sample. The test and retest reliability of the RFQ 8 two subscales was excellent (RFQ\_U = .84 & RFQ\_C = .75). In addition, the RFQ 8 subscales had negative correlations with demographic characteristics and positive relationships with clinical features such as depression, personality functioning and social impairment. As expected, the RFQ\_U and the RFQ\_C was either positively or negative correlated with PRFQ subscales to support convergent validity.

**Parental Reflective Functioning Questionnaire.** The PRFQ-1 (Luyten, et al., 2009) is a multidimensional self-report PRF assessment for mothers and fathers with children ages zero to three. The PRFQ-1 has thirty-nine items across three domains: a) pre-mentalizing modes b) certainty about mental states and c) interest and curiosity in mental states, and is shown in studies examining PRF (Cooke, Luyten, Priddis, Kendall,

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& Cavanagh, n.d.; Cooke, Priddis, Cavanagh, & Kendall, n.d), the Incredible Years parent-babies program (Pontoppidan, 2015), PRF, emotional regulation and stress tolerance (Goldberg, 2011) and the COS program (Ramsauer et al., 2014; Rostad, 2014). Due to expanding interests in PRF and childhood attachments, Luyten, Mayes, Nijssens, and Fonagy (submitted for publication) developed the PRFQ 18 to measure PRF across eighteen subscale items for parents with children ages zero to five.

***Scoring, reliability and validity.*** The preliminary study (Luyten et al., 2009) of the PRFQ examining mother-child dyads described the RF measure as a self-report measure that requires individuals to rate each subscale item on a Likert scale from one (strongly disagree) to seven (strongly agree); yielding a total PRF score. Rostad (2014) explained higher scores indicate a greater level of PRF. Internal consistency was good for the PRFQ: .70 (PM), .82 (CMS) and .75 (IC) in the preliminary study (Luyten et al., 2009), as well as, even higher scores of .98 (PM), .99 (CMS) and .89 (IC) in a study examining mother-child dyads (Bottos & Nilsen, 2014). In addition, the factor values (5.48, 3.41 & 3.29) support the construct validity for the PRFQ by identifying three independent variables (Luyten et al., 2009). Rostad's research (2016) further supports the factor construct by identifying that the PRFQ subscales are related to characteristics of the parent-child relationship and independent of anxiety, depression, parental rejection and avoidance. Furthermore, the preliminary study also identified positive correlations between RF and infant attachment and differences between mother and father RF; defending the factor structure and factor solution (Luyten et al., 2009).

Further validation of the PRFQ is identified in studies examining the COS program (Gray, 2015), attachment-based parent education programs (Rostad, 2016), PRF

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and infant distress (Rutherford, Goldberg, Luyten, Bridgett, & Mayes, 2013) distress and tolerance in motherhood (Rutherford, Booth, Mayes, Luyten, & Bridgett, 2015) and measuring PRF in mothers with childhood maltreatment and depressive symptoms (Bottos & Nilsen, 2014).

*Strengths and weaknesses.* The PRFQ is a cost-effective and time-efficient self-report PRF measure. Preliminary and additional studies (Bottos & Nilsen, 2014; Gray, 2015; Luyten et al., 2009; Rutherford et al., 2013; Rutherford et al., 2015) demonstrate that the PRFQ is a reliable and valid RF measure. These studies also showed how the PRFQ is easy to complete and administer; reaching the PRFQ goal to be applicable to diverse populations. Nevertheless, it is evident the PRFQ is in its preliminary stages and psychometrics require further research. Luyten et al. (2015) highlighted that the PRFQ is vulnerable to discrepancies in terms of parents answering questions to reflect how they should be versus how they actually perform during interactions; suggesting possible biases. It is important to note that the PRFQ is limited in terms of being only applicable to parents of children ages zero to five. Overall, the PRFQ appears to be a booming and developing RF measure in the field of psychology. This indicates that the PRFQ is a potential RF measure to apply pre- and post- intervention to evaluate the COS-P program; however, given the limited research on the PRFQ, it is necessary to further examine and validate the PRFQ psychometrics.

### **“One-Hit” Measures**

One-hit measures did not pass preliminary stages of development and application and included these 8 RF measures: the RFRS (Meehan et al., 2009), BRFI (Rudden et al., 2005 as cited in Ruitimann, & Meehan, 2012), RFQ (Levy, et al. 2005 as cited in Hill,

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Levy, Meehan, & Reynoso, 2007). CRFS (Gilbert et al., 2007 as cited in Gilbert, 2008), PSRFS (Rudden et al., 2006), CRF (Fertuck et al., 2012); and the MRFS (Slade & Patterson, 2005 as cited in Daley, 2013).

**Reflective functioning rating scale.** The RFRS (Meehan et al., 2009) is a fifty item rating RF scale that can be applied to numerous data sources (e.g., AAI, observations and interviews). The RFRS examines RF across three domains: a) the capacity to extract mental states causing behaviour or the absence of behaviour, b) an individual's awareness of mental states (domain two), and, c) the developmental aspects of mental states (Meehan et al., 2009). The process of measuring RF involves applying the RFRS to narrative-based data such as the AAI by rating an individual's responses based on Fonagy's scoring manual (Meehan et al., 2009). The time required to score the RFRS depends on the nature of the narrative data and it could be surmised that the RFRS demands similar training requirements as the RFS.

**Scoring, reliability and validity.** The RFRS scoring procedure involves a trained coder rating each subscale from one to five based on the interviewee's narrative responses (Meehan et al., 2009); although, no literature currently speaks to the specifics of each RFRS subscale items. In a preliminary study examining patients with borderline personality disorders, the RFRS had good internal consistency among domains (domain one .94, domain two .95 and domain three .92), as well as, correlations between subscale scores and AAI scores (Meehan et al., 2009); indicating reliability and validity.

**Strengths and weaknesses.** The RFRS is an adaptable RF measure applicable to a wide range of narrative-based data; being useful for a variety of settings. Additionally, the preliminary study found positive reliability and validity outcomes (Meehan et al.,

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2009). On the other hand, reliability and validity of the RFRS is limited; indicating a lack of strong psychometric evidence. For these reasons, it does not appear that the RFRS is appropriate for evaluating RF outcomes from the COS-P.

**Brief reflective functioning interview.** The BRFI (as cited in Ruitimann & Meehan, 2012) developed by Rudden, et al. in 2005 is a RF interview assessment concentrating on questions specifically examining individual's attachment relationships. According to Ruitimann and Meehan (2012), the BRFI is an eleven-item interview inviting the interviewee to reflect on their childhood experiences with *one* attachment figure or parent in order to explore how this figure affected their life and attachments. In addition, individuals are asked to describe someone significant so that the trained interviewer can gain a better understanding of their perceptions of a non-parental attachment relationship. The BRFI takes fifteen to thirty minutes to administer, is audiotaped for transcribing and coding, and then coded using the RFS (Ruitimann & Meehan, 2012).

**Scoring, reliability and validity.** The BRFI scoring process involves trained coder to rate each interviewee's transcribed response on an eleven-point grading scale from -1 (antireflective) to 9 (exceptionally reflective) based on the RFS coding system (Rutimann & Meehan, 2012). Taking into account the RFS requirements, coders complete training in the RFS coding system. In assessing the reliability and validity of the BRFI, Rutimann and Meehan (2012) illustrated strong internal consistency (.97); thus, indicating the interrelation between the eleven items. This study also found similar RF scores between the BRFI and the AAI; demonstrating discriminant validity and the ability to measure RF.

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At this time the BRFI is included in two studies evaluating RF in undergraduate students (Rutimann & Meehan, 2012; Morel & Papouchis, 2015).

***Strengths and weaknesses.*** The BRFI is a timely and relatively cost effective RF measure in that the interview for scoring is brief. This makes the measure attractive for researchers who use multiple assessments and for professionals in their clinical practice. In addition, research identifies that the BRFI is able to determine an interviewee's general RF capacity based on the reflection of only one attachment and have similar outcomes with AAI results; indicating it is a reliable measure (Rutimann & Meehan, 2012; Morel & Papouchis, 2015). Nevertheless, it is evident the BRFI still needs further research to support its validity. This lack of data and evidence to support the BRFI signifies this RF measure is still in its preliminary stage; thus, unsuitable to evaluate the COS-P at this time.

***Reflective functioning questionnaire.*** The RFQ, (as cited in Hill, et al., 2007) developed by Levy et al. in 2005, is a fifty three item rating scale to provide a time efficient RF measure that can be applied to various sources (interviews and/or observation data). According to Hill et al. (2007), this multi-item rating scale specifically examines fifty-three items across eleven different RF domains to determine an individual RF score. The process of measuring RF involves a coder scoring an interviewee's response to narrative-based data such as audiotaped AAI interviews (Hill, et al., 2007).

***Scoring, reliability and validity.*** A current research study evaluating RF in patients with BPD (Hill et al., 2007) described the RFQ scoring process involving a trained coder assessing each subscale item on a scale from one to five (1= not true at all,

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3= somewhat true, 5= very true) based on the narrative data (Hill et al., 2007). Testing of the RFQ is currently in progress (Hill, et al., 2007).

*Strengths and weaknesses.* The RFQ is an adaptable RF measure to numerous types of narrative data; however, evidence to support the RFQ is currently in progress. This suggests that the RFQ requires substantial psychometric testing to identify characteristics, reliability, validity, strengths and limitations; it could not be used to evaluate the COS-P at this time

**Caregiver reflective functioning scale.** The CRFS, (as cited in Gilbert, 2008) created by Gilbert et al. in 2007, is originally a sixty item rating scale to measure PRF and parental self-reflection. It was later reduced to thirty-seven items (twenty six items assessing PRF and eleven items examining PRF for use in the evaluation of the twenty week COS program. The process of measuring RF involves coders rating individual's responses to the narrative-based COS interview questions (Gilbert, 2008; Powell et al., 2014).

*Scoring, reliability and validity.* In a scale development study examining caregiver- child dyads, Gilbert (2008) explained the CRFS scoring process as involving coders rating each COS interview response as: 1) did not observe it, 2) may have observed it, but if so, it was minimal, and, 3) definitely observed. Gilbert (2008) does not specify any administration requirements; however, indicated that the administration and scoring process takes approximately three hours (Gilbert, 2008). Currently the CRFS is only illustrated in a scale development study assessing caregiver-child dyads (Gilbert, 2008). No literature is found identifying the reliability and validity of the CRFS.

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***Strengths and weaknesses.*** While the CRFS has been used to evaluate COS programs, future research is needed to identify and examine reliability, validity, strengths, and limitations to the CRFS. Due to this lack of data and evidence to support the CRFS, this RF measure is not the right fit to evaluate the COS-P at this time.

***Panic specific reflective functioning scale.*** The PSRFS (Rudden et al., 2006) is a RF scale specifically designed for individuals with panic disorders. The purpose of the PSRFS is to elicit an individual's understanding and self-awareness of their contributions to panic symptoms (Rudden et al., 2006). The process of the PSRFS involves interviewer's completing a semi structured abbreviated AAI interview called the Panic Specific Reflective Functioning Interview (PSRFI); containing 3 questions that encourage individuals to consider why they experience panic attacks and the feelings and circumstances that prompts the panic (Graf, 2009). The PSRFI is then assessed by a trained coder using an adapted version of the RFS (Rudden et al., 2006). Coders are required to obtain training in the RFS (Graf, 2009); involving a 3- day reliability training program (Fewell, 2006).

***Scoring, reliability and validity.*** Similar to the RFS, the scoring process for the PSRFI includes trained coders rating the PSRFI questions on a scale including -1 (bizarre reasoning for symptoms) to 5 (average capability to understand emotional meaning of panic), 6 to 8 (above average ability to consider and comprehend one's mental state and in others), and 9 (exceptional PSRF) (Graf, 2009). No literature speaks to the time required for both the PSRFI and PSRFS. Studies examining patients with panic disorders found the interrater reliability to be excellent with .86 (Rudden et al., 2006), as well as the ICC with .87 (Graf, 2009); indicating that the PSRFI and PSRFS can be rated reliably



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(Rudden et al., 2006). No correlations were found between the PSRFS scores and agoraphobia; (Graf, 2009; Rudden et al., 2006); demonstrating discriminant validity and that PSRFS scores are not influenced by this variable. Limited validity is recognized in studies assessing panic specific RF in patients with panic disorders (Graf, 2009; Rudden et al., 2006).

***Strengths and weaknesses.*** The PSRFS is a RF measure that is specifically designed and shown to be beneficial for individuals with panic disorders; being useful in a COS-P comprising of this population. On the other hand, the reliability and validity of PSRFS is limited. Considering this, the PSRFS would not be an appropriate RF measure to consider utilizing as an evaluative component of the COS-P.

**Computerized text analysis of the reflective functioning system.** The CRF (Fertuck, et al., 2012) is a computerized aided text analysis utilized to examine RF by means of 54 linguistic markers of RF speech. This RF measure employs the Marker Approach (Mergenthaler as cited in Fertuck et al., 2012) which transforms narrative based data such as the AAI to a computerized text scoring procedure. The CRF linguistic markers consist of 18 high and 18 low scores to decipher an individual's psychological state; specifically in RF. To conduct the CRF, Fertuck et al. (2012) suggests that future application consists of downloading the CRF measure from the internet followed by the insertion of narrative based data. Presently, the CRF is only highlighted in a single measure development study comparing a non- clinical sample and individuals diagnosed with BPD (Fertuck, et al., 2012).

***Scoring, reliability and validity.*** The scoring process is completed by the CRF text analysis; requiring the narrative based data to be formatted into text (Fertuck et al.,

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2012). No literature discussed time requirements nor provided evidence of the reliability of the CRF. Although, the construct validity of the CRF is recognized by significant correlations between RFS and CRF scores (Fertuck et al., 2012). This association demonstrates that the CRF is an effective measure of RF with narrative based measures such as the AAI.

***Strengths and weaknesses.*** The CRF is a favourable RF measure due to its efficiency and cost effectiveness. Future implications describe the CRF being easily obtainable via the internet and efficiently administered by removing any training and coding requirements (Fertuck, et al. 2012). The CRF also eliminates interviewer and coder bias; therefore, creating a more accurate and precise RF score. In contrast, the CRF is only shown in one study which highlighted that the CRF dictionary is only at the prototype stage; lacking evidence to support reliability and validity (Fertuck et al., 2012). Even though the CRF shows promising benefits, the CRF remains in its preliminary stages and would not be suitable to evaluate RF in the COS-P at this time.

**Maternal reflective functioning scale.** The MRFS (Slade & Patterson, 2005 as cited in Daley, 2013) is a multi- item rating scale utilized with the Pregnancy Interview<sup>2</sup> (Slade, 2003 as cited in Daley, 2013). More specifically, the MRFS is a modified version of the RFS to assess maternal RF during pregnancy. The MRFS focuses on assessing a pregnant women's ability to recognize her and her partner's mental state while transitioning into parenthood and the women's ability to understand how her child will also hold their own mental states (Daley 2013).

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<sup>2</sup> The PI involves asking 22 questions to women in their third trimester of pregnancy in order to assess her emotional experience during pregnancy and her perspective of self, as a mother and as a partner. Additionally, the PI examines a mother's depiction of the fetus and the future mother-infant relationships.

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**Scoring, reliability and validity.** The MRFS scoring process involves coders rating each interviewee's responses to the PI questions on a Likert scale including: -1 (negative RF), 3 (low RF), 5 (ordinary RF), 7 (marked RF) or 9 (exceptional RF); providing an overall RF score (Daley, 2013). No literature speaks to the timing and administering requirements. In a study examining first time moms, Daley (2013) identified discriminant validity for the MRFS by demonstrating its correlation with the Differentiation-Relatedness Scale (assesses an individual's awareness of self and comprehension of others); suggesting the MRFS is capable of measuring RF accurately.

**Strengths and weaknesses.** The MRFS is specifically designed to measure RF in mothers during pregnancy; therefore, being useful with this population. Given the narrative based data and self- report measures needed to be completed to obtain an overall RF score, it could be surmised that this is a time-consuming and costly application. Overall, there is little evidence to support that the MRFS is a reliable and valid RF measure to utilize in evaluating the COS-P.

### **Discussion**

Overall, RF is a non-static human function; playing a significant role in an individual's ability to identify, translate and understand one's own and other's mental states. RF provides individuals with the capacity to distinguish between manifestation and reality, predict behaviour, enhance interpersonal communications and encourage and preserve attachment security (Fonagy et al., 1991; Fonagy et al., 1998). In addition, RF is demonstrated to be directly correlated to the transmission of PRF, child representations and attachment style (Fonagy et al., 1991); thus influencing parent-child relationship outcomes. For these reasons, RF is an increasingly used measure in parent-child

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including the evaluation of the COS-P. The COS-P, an eight week program, aims to increase PRF by supporting caregivers to reflect on their own and their child's mental state, by assisting them to distinguish their child's attachment need and how to respond to their child's behaviour (Cooper et al., 2009). Given that RF is a key outcome variable within the COS-P, it seems relevant to utilize RF measures to evaluate this program. To date, no literature examines all the current RF measure within the field of psychology in order to determine the most suitable measure for the COS-P.

The purpose of this paper was to review RF measures in the field of psychology to determine the most suitable pre- and post- RF measure to evaluate whether the COS-P impacts PRF. Eighty-six studies uncovered 11 different possible RF measures. These measures were categorized as gold standard measures, booming measures, or one-hit measures. Furthermore, data removal identified three key considerations to take into account when choosing a suitable RF measures. First, Choi-Kain and Gunderson (2008) highlighted time requirements. The literature identifies vast time distinctions needed between utilizing self-report and narrative based RF measures. It appears that self-report measures require no specific administration training, and requires insignificant time to complete and obtain scores. While, narrative based RF measures demands collaboration via an interview process, training in administration, transcribing and coding, and long periods of time to obtain scores. Second, the cost requirements of RF measures (Choi-Kain & Gunderson, 2008). Self-report measures do not involve any expenses to implement and code for a RF scores. Whereas, narrative based measures are demonstrated to include high costs for administration and coding training requirements. Third, applicability needs are prudent to assess. A vast majority of the RF measurements

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discussed in this review examine general RF in adults; therefore, applicability is very inclusive. These measures are relevant for various settings, population groups and demographics. The minority of the RF measures in this review either assesses PRF in caregivers or is targeted for specific populations (e.g., those experiencing panic).

Taking into thought these three considerations, it appears that the PRFQ may be the most suitable pre- and post RF measure to utilize in evaluating the COS-P. This review identifies strengths of the PRFQ measure such as its time efficiency, cost effectiveness and specific application for caregivers. On the other hand, given the limited research on the PRFQ, it is necessary to first conduct an independent study to examine and validate the PRFQ psychometrics.

The important contribution of this systematic literature review was the identification of 86 studies utilizing 11 RF measures in adults and/or parents, the critical review of each measure and the categorization of the measure as to : 1) gold standard measures (n=2), 2) booming measures (n=2), and, 3) one-hit measures (n=7). This review provides a resourceful tool on the characteristics, psychometrics, strengths and weaknesses of the RF measures available in the field of psychology. In addition, this paper uncovers the early stages of knowledge regarding parent RF and the availability of measurements. In comparison to another RF review containing only peer-reviewed sources (Katznelson, 2014), this paper recognizes the early stages of RF by including non-peer reviewed master theses (n=3), doctoral dissertations (n=23), conference proceedings (n=1), poster summaries (n=7) consisting within the 86 studies. Plus, this review reveals the inaccessibility of RF measures from original authors and/or their absence of obtainability through secondary citations throughout the literature. Making

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these tools widely available is important to gain knowledge in RF. Furthermore, this review contains studies largely focused in the US (n=42), UK(n=8) and Denmark (n=5); signifying the importance of networking between these researchers while also conducting psychometric testing of measures independent of the originators of the measures.

### **Limitations and Future Research**

Due to limited funding, this review did not include published books. Future research will benefit in examining all published books implementing RF measures to assess for measurements not included in this paper and to further validate RF measures outlined in this review. In the perspective of quantitative theory, the majority of the studies used in this review contain small sample size and limited psychometrics. While the studies in this review contain diverse non-clinical and clinical sample sizes, larger sample sizes would provide a stronger reflection and validation of RF measure's applicability, reliability, and suitability. This will also determine whether or not RF measures need to be designed specifically for particular populations. Psychometric properties appear to be the most dominant limitation among various studies. Future research will benefit with further reliability and validity testing, especially, test-retest reliability and construct validity. This will provide more information regarding the RF measure's ability to be used with other mentalization facets and ensure factor subscales measure RF.

**References**

- Ainsworth, M., Blehar, M. C., Waters, E., & Wall, S. (1978). *Patterns of attachment: A psychological study of the strange situation*. New York: Erlbaum.
- Antonsen, B. T., Johansen, M. S., Rø, F. G., Kvarstein, E. H., & Wilberg, T. (2015). Is reflective functioning associated with clinical symptoms and long-term course in patients with personality disorders? *Comprehensive Psychiatry*, *64*, 46-58.  
<http://10.1016/j.comppsy.2015.05.016>
- Bain, K. (2014). "New beginnings" in South African shelters for the homeless: Piloting of a group psychotherapy intervention for high-risk mother-infant dyads. *Infant Mental Health Journal*, *35*(6), 591-603. <http://10.1002/imhj.21457>
- Bammens, A., Adkins, T., & Badger, J. (2015). Psycho-educational intervention increases reflective functioning in foster and adoptive parents. *Adoption & Fostering*, *39* (1), 38-50. <http://10.1177/0308575914565069>
- Bell-Thomson, S. (2014). *Effortful control and reflective functioning: Testing a model of affect regulation*. (Doctoral dissertation). Retrieved from ProQuest Dissertations & Theses Global. (Order No. 3581880).
- Bender, D., Morey, L., & Skodol, A. (2010). Toward a model for assessing level of personality functioning in *DSM-5*, part I: A review of theory and methods. *Journal of Personality Assessment*, *93* (4), 332-346.  
<http://10.1080/00223891.2011.583808>
- Bergeron, C. E. (2010). *The use of reflective-functioning manual for application to adult attachment interview as a preliminary prognostic measure*. (Doctor dissertation). Retrieved from ProQuest Dissertations & Theses Global. (Order No. 3475701).

## REFLECTIVE FUNCTIONING

- Bottos, S., & Nilsen, E. (2014). The cross-generational effects of maternal maltreatment histories: Implications for children's mentalizing development. *Child Abuse and Neglect*, 38(6), 1094-1105. <http://10.1016/j.chiabu.2014.02.012>
- Bouchard, M., Target, M., Lecours, S., Fonagy, P., Tremblay, L., Schachter, A., & Stein, H. (2008). Mentalization in adult attachment narratives: Reflective functioning, mental states, and affect elaboration compared. *Psychoanalytic Psychology*, 25(1), 47-66. <http://10.1037/0736-9735.25.1.47>
- Capstick, C. C. (2008). *The role of higher-order cognition in parental reflective functioning: A correlational study of executive and reflective capacities and the related contributions of substance abuse and depression* (Doctoral dissertation). Retrieved from ProQuest Dissertations & Theses Global. (Order No. 3296958).
- Carlisle, J. R. (2014). *Using mentalizing and psychopathy to explore a dimensional model of antisocial and borderline personality disorder*. Retrieved from <http://discovery.ucl.ac.uk>
- Chiesa, M., & Fonagy, P. (2014). Reflective function as a mediator between childhood adversity, personality disorder and symptom distress. *Personality and Mental Health*, (1), 52-66. <http://10.1002/pmh.1245>
- Choi-Kain, L., & Gunderson, J. (2008). Mentalization: ontogeny, assessment, and application in the treatment of borderline personality disorder. *American Journal of Psychiatry*, 165(9), 1127-1135. Retrieved from <http://0-eds.b.ebscohost.com>.
- Cooke, D., Luyten, P., Priddis, L., Kendall, G., & Cavanagh, R. (n.d.) *Paternal reflective functioning: Comparisons of mothers' and fathers' self-reported parental RF and*



## REFLECTIVE FUNCTIONING

- associations with family functioning* [Poster]. Retrieved from <https://www.academia.edu>
- Cooke, D., Priddis, L., Cavanagh, R., & Kendall, G. (n.d.). *Paternal reflective functioning: A preliminary look at the PRFQ with mothers and fathers using analysis with the rasch model* [Poster]. Retrieved from <https://www.academia.edu>
- Cooper G., Hoffman K. T., Powell B. (2009). *Circle of Security: COS-P Facilitator DVD Manual 5.0*. Spokane, WA: Marycliff Institute
- Daley, A. E. (2013). *Reflective functioning and differentiation-relatedness during pregnancy and infant attachment outcomes at one year* (Doctoral dissertation). Retrieved from ProQuest Dissertations & Theses Global. (Order No. 3589757).
- D'Angelo, K.J. (2006). *The role of reflective functioning as a protective factor in survivors of trauma*. (Doctoral dissertation). Retrieved from ProQuest Dissertations & Theses Global. (Order No. 3233769).
- Diamond, D., Levy, K. N., Clarkin, J. F., Fischer-Kern, M., Cain, N. M., Doering, S., & Buchheim, A. (2014). Attachment and mentalization in female patients with comorbid narcissistic and borderline personality disorder. *Personality Disorders: Theory, Research, and Treatment*, 5(4), 428-433. <http://10.1037/per0000065>
- Dollberg, D., Feldman, R., & Keren, M. (2010). Maternal representations, infant psychiatric status, and mother-child relationship in clinic-referred and non-referred infants. *European Child & Adolescent Psychiatry*, 19(1), 25-36. <http://10.1007/s00787-009-0036-5>

## REFLECTIVE FUNCTIONING

- Ekeblad, A., Falkenström, F., & Holmqvist, R. (2016). Reflective functioning as predictor of working alliance and outcome in the treatment of depression. *Journal of Consulting and Clinical Psychology, 84*(1), 67-78. <http://10.1037/ccp0000055>
- Ensink, K., Normandin, L., Plamondon, A., Berthelot, N., & Fonagy, P. (2016). Intergenerational pathways from reflective functioning to infant attachment through parenting. *Canadian Journal of Behavioural Science / Revue Canadienne Des Sciences Du Comportement, 48*(1), 9-18. <http://10.1037/cbs0000030>
- Esbjörn, B. H., Pedersen, S. H., Daniel, S. F., Hald, H. H., Holm, J. M., & Steele, H. (2013). Anxiety levels in clinically referred children and their parents: Examining the unique influence of self-reported attachment styles and interview-based reflective functioning in mothers and fathers. *British Journal of Clinical Psychology, 52*(4), 394-407. <http://10.1111/bjc.12024>
- Fewell, C. H. (2006). *Attachment, reflective function, family dysfunction, and psychological distress among college students with alcoholic parents*. (Doctoral dissertation). Retrieved from ProQuest Dissertations & Theses Global. (Order No. 3206748).
- Fertuck, E. A., Mergenthaler, E., Target, M., Levy, K. N., & Clarkin, J. F. (2012). Development and criterion validity of a computerized text analysis measure of reflective functioning. *Psychotherapy Research, 22*(3), 298-305. <http://10.1080/10503307.2011.650654>
- Fischer-Kern, M., Fonagy, P., Kapusta, N. D., Luyten, P., Boss, S., Naderer, A., & Leithner, K. (2013). Mentalizing in female inpatients with major depressive

## REFLECTIVE FUNCTIONING

- disorder. *Journal of Nervous & Mental Disease*, 201(3), 202-207.  
<http://10.1097/NMD.0b013e3182845c0a>
- Fonagy, P., Gergely, G., & Target, M. (2007). The parent-infant dyad and the construction of the subjective self. *Journal of Child Psychology & Psychiatry*, 48(3/4), 288-328. [http:// 10.1111/j.1469-7610.2007.01727](http://10.1111/j.1469-7610.2007.01727)
- Fonagy, P., Luyten, P., Moulton-Perkins, A., Lee, Y., Warren, F., Howard, S., Ghinai, R., Fearon, P., & Lowyck, B. (2016). Development and validation of a self-report measure of mentalizing: The reflective functioning questionnaire. *Plos ONE*, 11(7), 1-28. <http://10.1371/journal.pone.0158678>
- Fonagy, P., Steele, M., Steele, H., Moran, G. & Higgitt, A. (1991). The capacity for understanding mental states: The reflective self in parent and child and its significance for security of attachment. *Infant Mental Health Journal*, 12 (3), 201-218. [http:// 10.1002/1097-0355\(199123\)1](http://10.1002/1097-0355(199123)1)
- Fonagy, P., Leigh, T., Steele, M., Steele, H., Kennedy, R., Mattoon, G., & Gerber, A. (1996). The relation of attachment status, psychiatric classification, and response to psychotherapy. *Journal of Consulting and Clinical Psychology*, 64(1), 22-31. <http://10.1037/0022-006X.64.1.22>
- Fonagy, P., Steele, M., Moran, G., Steele, H., & Higgitt, A. (1993). Measuring the ghost in the nursery: An empirical study of the relation between parents' mental representations of childhood experiences and their infants' security of attachment. *Journal of the American Psychoanalytic Association*, 41(4), 957-989. [http:// 10.1177/000306519304100403](http://10.1177/000306519304100403)

## REFLECTIVE FUNCTIONING

- Fonagy, P., Target, M., Steele, H. & Steele, M. (1998). *Reflective-functioning manual: For application to adult attachment interviews (Version 5)*. Retrieved from <http://mentalizacion.com>
- George, C., Kaplan, N., & Main, M. (1985). *The Adult Attachment Interview unpublished manuscript*, University of California at Berkeley. Retrieved from <http://www.psychology.sunysb.edu>
- Gilbert, J. L. (2008). *Reflective functioning and caregiver behavior: Development of caregiver reflective functioning scales (CRFS) for use with the Circle of Security Intervention (COSI)*. (Doctoral dissertation). Retrieved from Dissertation Abstracts International. (Order No. 3323375)
- Goldberg, B. (2011). *Parental reflective functioning, emotion regulation, and stress tolerance: A preliminary investigation*. (Master's thesis). Retrieved from ProQuest Dissertations & Theses Global. (Order No. 3480933).
- Graf, E. P. (2009). *The relationship of RF and severity of agoraphobia in the outcome of a psychoanalytic psychotherapy for panic disorder*. (Doctoral dissertation). Retrieved from ProQuest Dissertations & Theses Global. (Order No. 3378569).
- Grant, M. J., & Booth, A. (2009). A typology of reviews: An analysis of 14 review types and associated methodologies. *Health Information & Libraries Journal*, 26(2), 91-108. <http://10.1111/j.1471-1842.2009.00848.x>
- Gray, S. O. (2015). Widening the circle of security: A quasi-experimental evaluation of attachment-based professional development for family child care providers. *Infant Mental Health Journal*, 36(3), 308-319. <http://10.1002/imhj.21513>

## REFLECTIVE FUNCTIONING

- Grienenberger, J. F. (2002). *The impact of maternal RF on mother-infant affective communication: Exploring the link between mental states and observed caregiving behavior*. (Doctoral dissertation). Retrieved from Dissertation Abstracts International. (Order No. 3063835)
- Grienenberger, J., Kelly, K., & Slade, A. (2005). Maternal reflective functioning, mother–infant affective communication, and infant attachment: Exploring the link between mental states and observed caregiving behavior in the intergenerational transmission of attachment. *Attachment & Human Development*, 7(3), 299-311.  
<http://10.1080/14616730500245963>
- Hartmann, L., Neubert, V., Lärer, K., Ackermann, P., Schreiber, M., Fischmann, T., & Leuzinger-Bohleber, M. (2015). Mentalization and the impact of psychoanalytic case supervision. *Journal of the American Psychoanalytic Association*, 63(3), 20-22. <http://10.1177/00030651155947752>
- Hill, L. L., Levy, K. N., Meehan, K. B., & Reynoso, J. S. (2007). Reliability of a multidimensional measure for scoring reflective function. *Journal of the American Psychoanalytic Association*, 55(1), 309-313.  
<http://10.1177/00030651090570011008>
- Hoffman, K. T., Marvin, R. S., Cooper, G., & Powell, B. (2006). Changing toddlers' and preschoolers' attachment classifications: The circle of security intervention. *Journal of Consulting and Clinical Psychology*, 74(6), 1017-1026.  
<http://10.1037/0022-006X.74.6.1017>

## REFLECTIVE FUNCTIONING

- Horton, E., & Murray, C. (2015). A quantitative exploratory evaluation of the circle of security-parenting program with mothers in residential substance-abuse treatment. *Infant Mental Health Journal*, 36(3), 320-336. <http://10.1002/imhj.21514>
- Hörz-Sagstetter, S., Mertens, W., Isphording, S., Buchheim, A., & Taubner, S. (2015). Changes in reflective functioning during psychoanalytic psychotherapies. *Journal of the American Psychoanalytic Association*, 63(3), 481-509. <http://10.1177/0003065115591977>
- Huber, A., McMahon, C. A., & Sweller, N. (2015a). Efficacy of the 20- week circle of security intervention: Changes in caregiver reflective functioning, representations, and child attachment in an Australian clinical sample. *Infant Mental Health Journal*, 36 (1), 1-19 <http://10.1002/imhj.21540>
- Huber, A., McMahon, C., & Sweller, N. (2015b). Improved child behavioural and emotional functioning after circle of security 20-week intervention. *Attachment and Human Development*, 17(6), 547-569. <http://10.1080/14616734.2015.1086395>
- Huth-Bocks, A., Earls, L., Muzik, M., Beeghly, M., & Stacks, A. (2014). Secure base scripts are associated with maternal parenting behavior across contexts and reflective functioning among trauma-exposed mothers. *Attachment and Human Development*, 16(6), 535-556. <http://10.1080/14616734.2014.967787>
- Jacobs, M. L. (2014). *Parental reflective functioning and the development of self-regulation: An examination of the relationship between parental reflective functioning and children's capacity to delay gratification*. (Doctoral Dissertation). Retrieved from ProQuest Dissertations & Theses Global. (Order No. 3612323).

## REFLECTIVE FUNCTIONING

- Jessee, A. C. (2012). *The role of reflective functioning in predicting parenting and coparenting quality*. (Doctoral dissertation). Retrieved from ProQuest Dissertations & Theses Global. (Order No. 3600686).
- Karlsson, R., & Kermott, A. (2006). Reflective-functioning during the process in brief psychotherapies. *Psychotherapy: Theory, Research, Practice, Training*, 43(1), 65-84. <http://10.1037/0033-3204.43.1.65>
- Katzow, A. (2011). *Keeping a mind in mind: The role of reflective functioning in the process and outcome of brief relational therapy*. (Doctoral dissertation). Retrieved from Dissertation Abstracts International. (Order No. 3444207).
- Katznelson, H. (2014). Reflective functioning: A review. *Clinical Psychology Review*, 34, 107-111. <http://10.1016/j.cpr.2013.12.003>
- Kullgard, N., Persson, P., Möller, C., Falkenström, F., & Holmqvist, R. (2013). Reflective functioning in patients with obsessive-compulsive disorder (OCD) – preliminary findings of a comparison between reflective functioning (RF) in general and OCD-specific RF. *Psychoanalytic Psychotherapy*, 27(2), 154-169. <http://10.1080/02668734.2013.795909>
- Levy, K. N., Meehan, K. B., Kelly, K. M., Reynoso, J. S., Weber, M., Clarkin, J. F., & Kernberg, O. F. (2006). Change in attachment patterns and reflective function in a randomized control trial of transference-focused psychotherapy for borderline personality disorder. *Journal of Consulting and Clinical Psychology*, 74(6), 1027-1040. <http://10.1037/0022-006X.74.6.1027>
- Lowyck, B., Vermote, R., Luyten, P., Franssen, M., Verhaest, Y., Vertommen, H., & Peuskens, J. (2009). Comparison of reflective functioning as measured on the

## REFLECTIVE FUNCTIONING

- adult attachment interview and the object relations inventory in patients with a personality disorder: A preliminary study. *Journal of the American Psychoanalytic Association*, 57(6), 1469-1472.  
<http://10.1177/00030651090570060803>
- Luyten, P., Mayes, L.C., Sadler, L., Fonagy, P., Nicholls, S., Crowley, M., Vesper, A., Mobley, A., Stewart, T., Close, N. & Slade A. (2009). *The parental reflective functioning questionnaire-1 (PRFQ-1)*. Leuven: University of Leuven.
- Luyten, P., Mayes, L., Nijssen, L & Fonagy, P. (submitted for publication). *The parental reflective functioning questionnaire: Development and preliminary validation*.  
Manuscript submitted for publication
- MacBeth, A., Gumley, A., Schwannauer, M., & Fisher, R. (2011). Attachment states of mind, mentalization, and their correlates in a first-episode psychosis sample. *Psychology & Psychotherapy: Theory, Research & Practice*, 84(1), 42-57.  
<http://10.1348/147608310X530246>
- Marvin, R., Cooper, G., Hoffman, K. & Powell, B. (2002). The circle of security project: Attachment-based intervention with caregiver-pre-school child dyads. *Attachment & Human Development*, 4(1), 107-124. <http://10.1080/14616730252982491>
- Mathiesen, B. B., Pedersen, S. H., Sandros, C., Katznelson, H., Wilczek, A., Poulsen, S. & Lunn, S. (2015). Psychodynamic profile and reflective functioning in patients with bulimia nervosa. *Comprehensive Psychiatry*, 62, 20-26.  
<http://10.1016/j.comppsycc.2015.06.005>



## REFLECTIVE FUNCTIONING

Mays, L. A. (2014). *Reflective functioning and caregiving quality: An exploratory study*.

(Doctoral dissertation). Retrieved from ProQuest Dissertations & Theses Global.

(Order No. 3733468)

Meehan, K. B., Levy, K. N., Reynoso, J. S., Hill, L. L., & Clarkin, J. F. (2009).

Measuring reflective function with a multidimensional rating scale: Comparison with scoring reflective function on the AAI. *Journal of the American*

*Psychoanalytic Association*, 57(1), 208-

213. <http://10.1177/00030651090570011008>

Mercer, J. (2015). Examining circle of security™: A review of research and theory.

*Research on Social Work Practice*, 25(3), 382-392.

<http://10.1177/1049731514536620>

Moher, D., Liberati, A., Tetzlaff, J., & Altman, D. (2009). Preferred reporting items for

systematic reviews and meta-analyses: The PRISMA statement. *Physical*

*Therapy*, 89(9), 873-880. <http://10.1371/journal.pmed1000097>

Morel, K. & Papouchis, N. (2015). The role of attachment and reflective functioning in

emotion regulation. *Journal of the American Psychoanalytic Association*, 63(4),

15-20. <http://10.1177/0003065115602447>

Moulton-Perkins, A., Rogoff, S., Luyten P., & Fonagy, P. (2011). *Development and*

*validation of a new self-report measure of mentalisation: The 54-item reflective*

*function questionnaire* [Abstract]. Research Conference of the British Association

for Counselling & Psychotherapy, Liverpool

## REFLECTIVE FUNCTIONING

- Nimroody, T. (2008). *The impact of mother's level of reflective functioning on child's play narratives, memory, and frustration tolerance*. (Doctoral dissertation). Retrieved from ProQuest Dissertations & Theses Global. (Order No. 3311532).
- Ordway, M. R., Sadler, L. S., Dixon, J., Close, N., Mayes, L., & Slade, A. (2014). Lasting effects of an interdisciplinary home visiting program on child behavior: Preliminary follow-up results of a randomized trial. *Journal of Pediatric Nursing*, 29, 3-13. <http://10.1016/j.pedn.2013.04.006>
- Pajulo, M., Pyykkönen, N., Kalland, M., Sinkkonen, J., Helenius, H., Punamäki, R., & Suchman, N. (2012). Substance-abusing mothers in residential treatment with their babies: Importance of pre- and postnatal maternal RF. *Infant Mental Health Journal*, 33(1), 70-81. <http://10.1002/imhj.20342>
- Pazzagli, C., Laghezza, L., Manaresi, F., Mazzeschi, C., Powell, B., Phillips, D., & Lis, A. (2014). The circle of security parenting and parental conflict: A single case study. *Frontiers in Psychology*, 5, 1-10. <http://10.3389/fpsyg.2014.00887>
- Pedersen, S. H., Lunn, S., Katznelson, H., & Poulsen, S. (2012). RF in 70 patients suffering from bulimia nervosa. *European Eating Disorders Review*, 20(4), 303-310. <http://10.1002/erv.2158>
- Pedersen, S. H., Poulsen, S., & Lunn, S. (2015). Eating disorders and mentalization. *Journal of the American Psychoanalytic Association*, 63(4), 671-694. <http://10.1177/0003065110003065>
- Perry, N., Newman, L. K., Hunter, M., & Dunlop, A. (2015). Improving antenatal risk assessment in women exposed to high risks. *Clinical Child Psychology & Psychiatry*, 20(1), 84-105. <http://10.1177/1359104513499355>

## REFLECTIVE FUNCTIONING

- Pontoppidan, M. (2015). The effectiveness of the incredible years™ parents and babies program as a universal prevention intervention for parents of infants in denmark: Study protocol for a pilot randomized controlled trial. *Trials*, *16*(1), 1-11.  
<http://10.1186/s13063-015-0859-y>
- Powell, B., Cooper, G., Hoffman, K., & Marvin, B. (2014). *The circle of security intervention: Enhancing attachment in early parent–child relationships*. New York, NY, US: Guilford Press.
- Poznansky, O. (2010). *Stability and change in maternal reflective functioning in early childhood* (Doctoral dissertation). Retrieved from ProQuest Dissertations & Theses Global. (Order No. 3426810).
- Ramsauer, B., Lotzin, A., Mühlhan, C., Romer, G., Nolte, T., Fonagy, P., & Powell, B. (2014). A randomized controlled trial comparing circle of security intervention and treatment as usual as interventions to increase attachment security in infants of mentally ill mothers: Study Protocol. *BMC Psychiatry*, *14*, 1-23.  
<http://10.1186/1471-244X-14-24>
- Ranawat, D. N. (2008). *Mentalization in psychotherapy supervision: Assessing the transmission of reflective functioning*. (Doctoral dissertation). Retrieved from ProQuest Dissertations & Theses Global. (Order No. 3293117)
- Reading, R. A. (2013). *Investigating the role of therapist reflective functioning in psychotherapy process and outcome*. (Master's thesis). Retrieved from ProQuest Dissertations & Theses Global. (Order No. 3566470).
- Rizzo, J. (2007). *Exploring the effects of the severity and constructive/destructive qualities of superego anxiety on mentalization in analytic and psychotherapy*

## REFLECTIVE FUNCTIONING

- narrative*. (Doctoral dissertation). Retrieved from ProQuest Dissertations & Theses Global. (Order No. 3221643).
- Rosen, J. B. (2013). *Parental reaction to a diagnosis of autism: How resolution relates to parental reflective functioning and parenting stress*. (Doctoral dissertation). Retrieved from ProQuest Dissertations & Theses Global. (Order No. 3570196).
- Rosso, A. M., Viterbori, P., & Scopesi, A. M. (2015). Are maternal reflective functioning and attachment security associated with preadolescent mentalization?. *Frontiers in Psychology, 6*, 1-12. <http://10.3389/fpsyg.2015.01134>
- Rostad, W. L. (2014). *Examining the effectiveness of the circle of security parenting DVD program*. (Doctoral dissertation). Retrieved from ProQuest Dissertations & Theses Global. (Order No. 3624654).
- Rostad, W., & Whitaker, D. (2016). The association between reflective functioning and parent–child relationship quality. *Journal of Child and Family Studies, 1-14*. <http://10.1007/s10826-016-0388-7>
- Rudden, M., Milrod, B., Target, M., Ackerman, S., & Graf, E. (2006). Reflective functioning in panic disorder patients: A pilot study. *Journal of the American Psychoanalytic Association, 54*(4), 1339-1343. <http://10.1177/00030651060540040109>
- Rutherford, H., Booth, C., Mayes, L., Luyten, P., & Bridgett, D. (2015). Investigating the association between parental reflective functioning and distress tolerance in motherhood. *Infant Behavior and Development, 40*, 54-63. <http://10.1016/j.infbeh.2015.04.005>

## REFLECTIVE FUNCTIONING

Rutherford, H. J., Goldberg, B., Luyten, P., Bridgett, D. J. & Mayes, L. C. (2013).

Parental reflective functioning is associated with tolerance of infant distress but not general distress: Evidence for a specific relationship using a simulated baby paradigm. *Infant Behavior and Development*, 36, 635-641.

<http://10.1016/j.infbeh.2013.06.008>

Rutimann, D. D., & Meehan, K. B. (2012). Validity of a brief interview for assessing reflective function. *Journal of the American Psychoanalytic Association*, 60(3), 577-589. <http://10.1177/0003065112445616>

Sadler, L. S., Slade, A., Close, N., Webb, D. L., Simpson, T., Fennie, K., & Mayes, L. C. (2013). Minding the baby: Enhancing reflectiveness to improve early health and relationship outcomes in an interdisciplinary home-visiting program. *Infant Mental Health Journal*, 34(5), 391-405. <http://10.1002/imhj.21406>

Sayre, J. M. (1999). *A validity study of the parent development interview coding system: Relations between mothers' mental models of parenting and behavior*. (Doctoral dissertation). Retrieved from Dissertation Abstracts International. (Order No. 9916367).

Schechter, D. S., Coots, T., Zeanah, C. H., Davies, M., Coates, S. W., Trabka, K. A., & Myers, M. M. (2005). Maternal mental representations of the child in an inner-city clinical sample: Violence-related posttraumatic stress and reflective functioning. *Attachment & Human Development*, 7(3), 313-331.

<http://10.1080/14616730500246011>

Slade, A. (2006). Reflective parenting programs: Theory and development.

*Psychoanalytic Inquiry*, 26(4), 640-657. <http://10.1080/07351690701310698>

## REFLECTIVE FUNCTIONING

- Slade, A., Belsky, J., Aber, J. L., & Phelps, J. L. (1999). Mothers' representations of their relationships with their toddlers: Links to adult attachment and observed mothering. *Developmental Psychology*, 35(3), 611-619. <http://10.1037/0012-1649.35.3.611>
- Slade, A., Bernbach, E., Grienberger, J., Levy, D., & Locker, A. (2015). *Addendum to Reflective Functioning Scoring Manual* (Fonagy, Steele, Steele, & Target, 1998) for use with the Parent Development Interview (PDI; Aber, Slade, Berger, Bresgi, & Kaplan, 1985; PDI-R; Slade, Aber, Berger, Bresgi & Kaplan, 2003). Unpublished Manuscript. New York, NY: The City College and Graduate Center of the City University of New York
- Slade, A., Grienberger, J., Bernbach, E., Levy, D., & Locker, A. (2005). Maternal reflective functioning, attachment, and the transmission gap: A preliminary study. *Attachment & Human Development*, 7(3), 283-298. <http://10.1080/14616730500245880>
- Sleed, M., Baradon, T., & Fonagy, P. (2013). New beginnings for mothers and babies in prison: A cluster randomized controlled trial. *Attachment & Human Development*, 15(4), 349-367. <http://10.1080/14616734.2013.782651>
- Srinivasan, C. A. (2005). *The relationship between reflective function and psychopathology in survivors of childhood abuse*. (Doctoral dissertation). Retrieved from ProQuest Dissertations & Theses Global. (Order No. 3184393).
- Stacks, A. M., Muzik, M., Wong, K., Beeghly, M., Huth-Bocks, A., Irwin, J. L. & Rosenblum, K. L. (2014). Maternal reflective functioning among mothers with childhood maltreatment histories: Links to sensitive parenting and infant

## REFLECTIVE FUNCTIONING

- attachment security. *Attachment & Human Development*, 16(5), 515-533.  
<http://10.1080/14616734.2014.935452>
- Stover, C. S. & Kiselica, A. (2014). An initial examination of the association of reflective functioning to parenting of father. *Infant Mental Health Journal*, 35(5), 452-461.  
<http://10.1002/imhj.21459>
- Stover, C., & Coates, E. (2015). The relationship of reflective functioning to parent child interactions in a sample of fathers with concurrent intimate partner violence perpetration and substance abuse problems. *Journal of Family Violence*, 1-10.  
<http://10.1007/s10896-015-9775-x>
- Suchman, N. E., DeCoste, C., Leigh, D. & Borelli, J. (2010). Reflective functioning in mothers with drug use disorders: Implications for dyadic interactions with infants and toddlers. *Attachment & Human Development*, 12(6), 567-585.  
<http://10.1080/14616734.2010.501988>
- Taubner, S., Kessler, H., Buchheim, A., Kächele, H., & Staun, L. (2011). The role of mentalization in the psychoanalytic treatment of chronic depression. *Psychiatry: Interpersonal & Biological Processes*, 74(1), 49-57. [http:// 10.1521/psyc. 2011. 74.1.49](http://10.1521/psyc.2011.74.1.49)
- Taubner, S., Hörz, S., Fischer-Kern, M., Doering, S., Buchheim, A. & Zimmermann, J. (2013). Internal structure of the reflective functioning scale. *Psychological Assessment*, 25(1), 127-135. <http://10.1037/a0029138>
- Twomey, A. (2012). *Parenting stress and theory of mind development in children with autism spectrum disorder: The influence of parental RF on this relationship.*

## REFLECTIVE FUNCTIONING

(Doctoral dissertation). Retrieved from ProQuest Dissertations & Theses Global.  
(Order No. 3528079).

Vospernik, P. (2015). *The relationship of adaptive and pathological narcissism to attachment style and reflective functioning*. (Doctoral dissertation). Retrieved from ProQuest Dissertations & Theses Global. (Order No. 3641917).



**Manuscript 2: Examining the Construct Validity of the 18-Item Parent Reflective  
Functioning Questionnaire**

Abstract

Parental reflective functioning (PRF) is a parent's capacity to understand their own and their child's mental states influencing their child's behaviour. To examine PRF, the 18-item Parent Reflective Functioning Questionnaire (PRFQ-18) was developed to capture 3 types of RF: pre-mentalizing, parent's certainty, and interest and curiosity surrounding a child's mental state. The purpose of this research was to examine the factor structure and test the discriminant and construct validity of the PRFQ-18. Three hundred and eight parents (Males=120; Females=186) across Canada completed the PRFQ-18, the Perceived Stress Scale, the Parenting Coping Scale, the Parenting Sense of Competence Scale and the Medical Outcome Study Social Support Survey through SurveyMonkey. A confirmatory factor analysis (CFA) was conducted to test the hypothesized 3-factor structure of the PRFQ-18 using an iterative process.

CFA results showed an initially poor solution which was dramatically improved by deleting 2 negatively worded items and adding an error covariance path. The final model supported a three-factor solution (RMSEA = .08, CFI = .92, IFI = .92). The PRFQ-18 subscales significantly correlated with measures of stress, parental coping and confidence and social support in theoretically meaningful directions. PRFQ-18 subscales were only moderately correlated; further supporting 3 relatively unique dimensions of reflective functioning. Results from this study provide further evidence that the PRFQ-18 may be a useful measure of parent reflective functioning in a diverse sample of Canadian adults. Some minor revisions may further improve the suitability of the PRFQ-18 for

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assessing PRF. Overall these results add support for the construct validity of the PRFQ-18 measure. *Keywords: parental reflective functioning, parent reflective functioning questionnaire, construct validity*

### **Examining the Construct Validity of the 18-Item Parent Reflective Functioning Questionnaire**

Reflective functioning (RF), also known as mentalizing, describes an individual's capacity to recognize and interpret one's own and another's mental states to identify and comprehend the meaning behind one's own and another's behaviour (Fonagy, Steele, Steele, Moran, & Higgitt, 1991; Fonagy, Target, Steele, & Steele, 1998). This capacity to understand the motivations for the actions of others is believed to influence how one chooses to react to other people's behaviors (Spinelli, 2009). Rather than a natural ability, RF/mentalizing develops through the internal organization of an individual's understanding of one's own and other's feelings and behaviours through experiences, social and emotional information, meaning making (Fonagy et al., 1991; Fonagy et al., 1998) and interactions with primary caregivers (Fonagy, Gergely, & Target, 2007; Fonagy et al., 1991; Fonagy et al., 1998). In addition, social interactions, family structure, family size, parenting quality (Fonagy et al., 2007) and environmental responses (Srinivasan, 2005) are also found to influence the development of RF. The development of the RF neurological function is noteworthy as it provides individuals with the ability to predict behaviour, distinguish between manifestation and reality, and enhance interpersonal communications, self-organization (Fonagy et al., 1998), impulse control and affect regulation (Fonagy et al., 2007). In other words, individuals with high RF capabilities are better able to comprehend and reflect on the underlying mental states to behaviour and in response can improve these functions. Additionally, those with RF are better able to perceive themselves as parents and their relationships with their child; therefore, seeking out social support (Sadler, Novick, & Meadows-Oliver, 2016) and

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enhancing parental coping abilities (Rosen, 2013). That is, parents with high RF are better able to understand the significant role they play in their child's emotional development and will make adjustments in their parenting to foster their child's wellbeing. A preliminary study also identified links between RF and attachment security (Fonagy et al., 1991) prompting further curiosity in terms of the role of parent reflective functioning (PRF).

PRF distinguishes from RF as it pertains to a parent's capacity to understand and comprehend mental states influencing their child's behaviour (Luyten, Mayes, Nijssen, & Fonagy, submitted for publication) playing a crucial role in how parents respond to their child's needs and feelings (Grienenberger, Kelly, & Slade, 2005). Specifically, how a parent chooses to act in response to a child influences infant attachment (Grienenberger et al., 2005; Slade et al., 2005), a child's capacity to mentalize, child development (Slade et al., 2005), and healthy parent-child relationships (Ordway et al., 2014; Sadler et al., 2013). For example, a parent who has high RF is able to respond to a crying child with a hug and/or reflective dialogue; reinforcing that the child is safe and secure, and thus, strengthening the bond between the parent and child. The quality of attachment to a parent has been shown to be predictive of numerous developmental outcomes in children such as general wellbeing, self-esteem, social competence with peers, problem-solving abilities, academic success, behavioural outcomes, and resilience (Landy, 2002; Mares, Newman, & Warren, 2005; Siegel, 1999; Thompson, 2008).

Initial purposes of PRF measures were to directly measure maternal representations of their child (Slade, Belsky, Aber, & Phelps, 1999) and the PRF

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functions that influence the intergenerational transmission of attachment (Grienenberger et al., 2005; Slade, Grienenberger, Bernbach, Levy, & Locker, 2005). The application of PRF measures has expanded to different contexts such as drug-use disorders (Suchman, DeCoste, Leigh, & Borelli, 2010), mothers with childhood maltreatment (Bottos & Nilsen, 2014; Stacks et al., 2014), infant distress (Rutherford, Goldberg, Luyten, Bridgett, & Mayes, 2013), and parenting programs (Bain, 2014; Gray, 2015; Pontoppidan, 2015; Ramsauer et al., 2014; Sadler et al., 2013; Slead, Baradon, & Fonagy, 2013).

The gold standard narrative based RF measure assessing parental representations of their relationship with their child is the Parent Development Interview (PDI) (Slade et al., 1999). The original 45-item PDI scoring process involves a trained coder who utilizes narrative data to evaluate RF across 4 factors: 1) awareness of the nature of mental states, 2) the ability to tease out underlying behaviour of mental states, 3) identifying developmental aspects of mental states, and, 4) the mental states in relation to the interviewer (Aber et al., as cited in Slade et al., 1999). The PDI has been revised to a 40 item and a 29 item measure to assess parent reflective functioning relative to their own child, their parents and self (Personal communication, A. Slade, January 2016). The interview takes approximately 2 hours to administer and is audio recorded for transcribing. Trained coders rate each item on a Likert scale from -1 to 9 to produce a RF score (Slade et al., 1999). A limitation in terms of application and use of the PDI is that the training and coding requirements for the PDI are time consuming and expensive. Clinicians and researchers may experience these prohibitive factors, making the PDI unattractive and unrealistic.

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As an alternative to the narrative based PDI, the PRFQ-18 is an 18 item self-report measure (Luyten et al., 2009) which examines three domains of PRF: a) pre-mentalizing modes (PM), designed to capture a parent's inability to hold the child's mental state in mind, b) interest and curiosity in mental states (IC), intended to capture the level of interest in parents thinking about their child's mental states, and, c) certainty about mental states (CMS), measuring a parent's acknowledgment that their thoughts about their child's mental states are accurate (Luyten et al., 2009). Parents rate each subscale item on a Likert scale from one (strongly disagree) to seven (strongly agree). Preliminary studies one and two (Luyten et al., 2009) have provided evidence supporting the validity and reliability of the PRFQ-18 for measuring PRF.

In study one, Luyten et al. (2009) examined PRF in mothers with children ages 0 to 36 months. Construct validity of the PRFQ-18 was supported with a confirmatory factor analysis (CFA) of a 3-factor model with a good fit ( $\chi^2 = 217.73$ ,  $df = 123$ ,  $p < .001$ ;  $\chi^2/df = 1.77$ ; RMSEA = .05 (CI .04-.06); CFI = .91, NNFI = .91). Internal consistencies were good for PM (.70), IC (.82) and CMS (.75) and discriminant validity was identified in negative correlations between the PRFQ-18 factors and demographic features. As expected, PM was positively correlated to attachment avoidance, attachment anxiety, and symptomatic distress, whereas IC and CMS were not.

In study two, Luyten et al. (2009) found opposing results in the correlations between IC and CMS; revealing factorial variance across mothers and fathers. In contrast to study 1, correlations between PRFQ-18 factors and demographic features were non-existent or moderately related to the subscales; no relationships found between fathers, PM, attachment and symptomatic distress; indicating differences in factor loading among

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mothers and fathers. On the contrary, study 2 identified similar correlations between parenting stress and mothers and fathers. Parenting stress had negative correlations with IC and CMS, but positive correlations with PM on all subscales including parental competence. Furthermore, in study 3, the PRFQ-18 was utilized with the Strange Situation Procedure (SSP; Ainsworth, Blehar, Waters, & Wall, 1978). Luyten et al. (2009) found positive correlations between PM and IC, and the SSP; supporting the notion that parent's ability to hold their child's mental state is related to attachment security. Given that RF has previously been found to significantly correlate with infant attachment (Fonagy et al., 1991), study 3 strongly supports the validity of the PRFQ-18 as an indicator of PRF.

These studies from the originators of the PRFQ-18 provide some initial information on the psychometric properties of the PRFQ-18 but further research is warranted to offer an independent examination of the construct validity of the PRFQ-18. The purpose of this study was to examine the construct validity of the PRFQ-18 in a diverse sample of Canadian adults.

### **Hypothesis**

Based on results of existing studies of the PRFQ-18, it was hypothesized that the confirmatory factor analysis would uncover a 3-factor structure in the PRFQ-18 illustrating 3 key characteristics of RF (PM, IC & CMS). Second, to reinforce discriminant and construct validity of the PRFQ-18 it was hypothesized that we would find correlations between PRFQ-18 subscales and the Medical Outcome Study Social Support Survey (MOS-SSS), the Parenting Sense of Competence Scale (PSOC), the Perceived Stress Scale (PSS) and the Parenting Coping Scale (PCS). Specifically, it was

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hypothesized we would find positive correlations between PM and parental competence and negative relationships with IC and CMS. Third, it was hypothesized that positive correlations between PM and parenting stress and negative associations with IC and CMS would be identified. In accordance with previous research examining RF, it was hypothesized that IC and CMS would positively correlate with social support and negatively correlate with PM. Fourth, it was hypothesized we would find positive correlations between parental coping and IC and CMS and negative correlations with PM.

### Methods

#### Sample

Three hundred forty four adults were recruited through the SurveyMonkey's *Survey Audience*. After screening for eligibility, 317 participants completed the PRFQ-18 and 306 participants completed all study measures. Participant demographics are reported in Table 1. Participants randomly sampled into the study were Canadian parents over the age of 20 and not older than 60 years of age with at least one child between the age of 0 and 12 years; resulting in a diverse sample. With these inclusion criteria, 306 participants (120 male and 186 female) completed all survey measures the Parent Reflective Functioning Questionnaire (PRFQ-18), the Medical Outcome Study Social Support Survey (MOS-SSS), the Parenting Sense of Competence Scale (PSOC), the Perceived Stress Scale (PSS) and the Parenting Coping Scale (PCS). 317 participants provided completed data on the PRFQ-18 measure.

#### Measures

**Parent reflective functioning questionnaire (PRFQ-18).** The PRFQ-18 (Luyten et al., submitted for publication) is an eighteen-item self-report measure for parents with



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children ages zero to five. It measures parental reflective functioning across three domains: a) pre-mentalizing modes (PM; Items 1,4,7,10,13 & 16), b) interest and curiosity in mental states (IC; Items 3,6,9,12,15 & 18), and, c) certainty about mental states (CMS; Items 2,5,8,11,14 & 17). Parents are required to rate each subscale item on a Likert scale from 1 (strongly disagree) to 7 (strongly agree). The questionnaire is available from the authors.

**Parenting sense of competence scale (PSOC).** The PSOC is a 17-item self-report measure for assessing parents' sense of confidence and satisfaction with their parenting (Johnston & Mash, 1989). Due to poor factor loading for item 17 (.40), the PSOC was revised to a 16-item measure to assess parent sense of competence across two factors: a) satisfaction and b) efficacy and had good internal consistency for total score (.79), satisfaction (.75) and efficacy (.76) (Johnston & Mash, 1989). Ohan, Leung, and Johnston (2000) reported internal consistencies of .80 for both efficacy and satisfaction in mothers and .77 for efficacy and .80 for satisfaction in fathers. Parents are required to rate each subscale item on a Likert scale from 1 (strongly disagree) to 6 (strongly agree). Higher scores indicate greater parenting self-confidence. For our sample, satisfaction internal consistency estimates for were  $\alpha = .89$  and  $\Omega = .92$  and efficacy estimates were  $\alpha = .86$  and  $\Omega = .90$ .

**Perceived stress scale (PSS).** The PSS (Cohen, Kamarck, & Mermelstein, 1983) is originally a self-reported 14-item measure to examine the degree to which individuals view situations as stressful. The original PSS had good reliability in three preliminary samples (.84, .85, & .86) and in two test-retest samples (.85 & .55). The PSS was later revised to a simple 4 item (items 2, 6, 7 & 14) scale with an alpha reliability coefficient

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of .60; identifying it to be an adequate brief measure of perceptions of stress (Cohen & Williamson, 1988). The PSS requires individuals to rate items on a Likert scale from 0 (never) to 4 (very often). For our sample, internal consistency estimates were .68 for Cronbach's alpha and .85 for Omega.

**Medical outcome study social support survey (MOS-SSS).** The MOS-SSS (Gjesfjeld, Greeno, & Kim, 2008) 12-item version has four social support domains (tangible support, emotional-information support, affectionate support and positive interaction) (Gjesfjeld et al., 2008). The MOS-SSS has exhibited excellent reliability (.94) and good internal consistency for tangible (.87), emotional information (.91), affectionate (.88) and positive interaction (.92) support (Gjesfjeld, Greeno, & Kim, 2008). The MOS-SSS requires individuals to rate each subscale item on a Likert scale from 1 (none of the time) to 5 (all of the time). For our sample, internal consistency for the subscales ranged from alpha=.91 to .93 and omega ranged from .94 to .98.

**Parent coping scale (PCS).** The PCS (Ghate & Moran, 2013) is a single item scale to assess parent's perception of their own ability to cope with parenting. A preliminary study of the PCS found strong intraclass correlations coefficients (.93) and concurrent criterion validity (0.54) with the Parenting Self Agency Measure (Dumka et al, 1996). The PCS requires parents to respond to a single question ("how you are coping with being a parent these days?") on a response scale ranging from 1 ("I feel I am not coping at all these days") to 5 ("I always feel I am coping really well – things never or hardly ever get on top of me")

## Procedure

Prior to beginning the study, ethical approval for this study was provided by our university's Research Ethics Board. Participants were randomly contacted through

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SurveyMonkey's Survey Audience to participate in a study of "Experiences In Parenting." After screening for eligibility, parents completed the PRFQ-18, the MOS-SSS, the PSOC, the PSS and the PCS assessments online. Data was then exported to Excel and subsequently imported into SPSS 23 for analysis.

### **Data Analysis**

The data analysis was conducted in three stages. First, data were screened for outliers and missing data. Second, the factor structure and configuration of the PRFQ-18 was tested using the confirmatory factor analysis (CFA) process in AMOS 23 graphics (Arbuckle, 2014). The CFA was conducted in an iterative fashion. That is, we tested the initial hypothesized factor structure as indicted in Luyten (2009) followed by changes to the model based on model fit, non-significance of paths coefficients, and/or substantive suggestions offered by modification indices. Third, the relationships between the PRFQ-18 subscales and the subscales of the MOS-SSS, PSOC, PSS and the PCS data were investigated using bivariate correlations in IBM SPSS Statistics 23 (2015). RStudio (using R 3.2.5) was used to calculate ordinal Alpha and Omega forms of scale reliability (Gadermann et al, 2012).

## **Results**

### **PRFQ-18 Factor Structure**

Factor structure analysis of the PRFQ-18 resulted in examining four different CFA models (See Table 2) utilizing 317 participants. The initial CFA model testing of the hypothesized three factor structure of the PRFQ-18 (PM, CMS & IC) resulted in a reasonably poor model fit, as shown in Table 2. Results of the initial CFA indicated that item 11 was not significantly ( $p=.10$ ) contributing to the PRFQ-18

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measure. To decipher whether or not the model fit could improve with the removal of item 11, a second CFA was conducted. Results in Model 2 found improvements in the model fit. However, Model 2 showed a low standardized regression weight for item 18 (.27). To attempt enhancing the model fit even further, item 18 was removed in Model 3. After testing Model 3, results identified a more respectable model fit (see Table 2) and modification indices suggested a better model fit by adding a covariance between error terms 6 and 9. Adding a correlated error term between the errors for item 6 and 9 further improved model fit as seen in Table 2 (model 4). Model 4 resulted in a negative correlation between PM and IC (-.26), and positive correlations between CMS and IC (.36), and a between CMS and PM (.37) suggesting the PRFQ-18 measures three relatively independent characteristics of parental reflective functioning. See Figure 1. Based upon this model, internal consistencies for the PM, IC, and CMS subscales were alpha = .91, .88, .88, and omega= .91, .92, .95, respectively.

Table 2.

*Fit Statistics for CFA Models*

	$\chi^2/df$	RMSEA(90%CI)	CFI	NFI	NNFI(TLI)
Initial model	5.33	.117(.109-.126)	.81	.78	.78
Model 2	4.87	.111(.102-.120)	.84	.81	.82
Model 3	3.52	.089(.079-.099)	.91	.87	.89
Model 4	3.03	.80(.070-.091)	.92	.89	.91

*Note.* RMSEA = root mean square error of approximation; CFI = comparative fit index; NFI = normed fit index; NNFI = non-normed fit index. Initial model contains all 18 items. Model 2 has item 11 removed, Model 3 has items 11 & 18 removed, Model 4 adds a correlated error term to Model 3.

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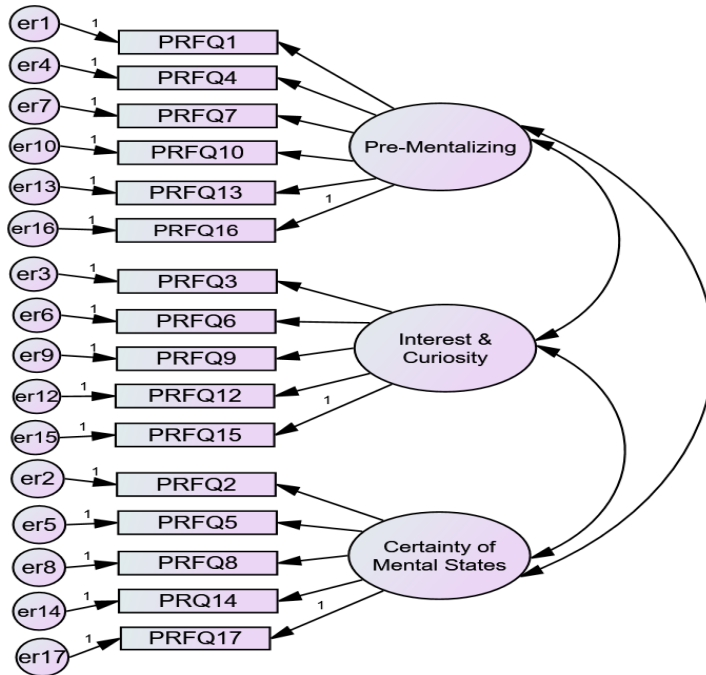


Figure 1. The PRFQ model fit without items 11 and 18.

### Intercorrelations among Measures

**Relationships with parenting sense of competence.** Similar to Luyten et al. (2009) findings, the Parenting Sense of Competence Scale (PSOC) demonstrated a range of correlation results across the PRFQ-18 subscales. See Table 3. Negative correlations were found between PM and satisfaction ( $r_{\text{males}} = -.65$ ;  $r_{\text{females}} = -.50$ ) and efficacy for females ( $r_{\text{females}} = -.14$ ). This suggests that parents with an inability to hold their child's mental state also have a lower sense of satisfaction with their parenting and a lower sense of efficacy for mothers. As expected, the IC subscale was positively correlated with efficacy ( $r_{\text{males}} = .44$ ;  $r_{\text{females}} = .28$ ) but not with satisfaction. These results indicate that parents with relatively higher levels of interest and curiosity in their child's mental state also have relatively higher levels of satisfaction as a parent and perceptions of parental

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competence. Finally, the CMS subscale had positive correlations with both satisfaction in men ( $r_{\text{males}} = .21$ ) and efficacy for both men and women ( $r_{\text{males}} = .43$ ;  $r_{\text{females}} = .32$ ). This shows that parents' who are more certain of their child's mental states report more efficacy for the parenting role. Further, for fathers, more certainty around mental states was associated with more satisfaction around being a parent.

**Relationships with stress.** Consistent with Luyten et al's (2009) preliminary studies, both the IC ( $r_{\text{males}} = -.17$ ;  $r_{\text{females}} = -.09$ ) and CMS ( $r_{\text{males}} = -.16$ ;  $r_{\text{females}} = -.13$ ) subscales were negatively correlated with stress, but these were not significant. On the other hand, PM was positively correlated with stress ( $r_{\text{males}} = .30$ ;  $r_{\text{females}} = .27$ ). That is, those reporting higher levels of stress had a relatively higher inability to hold their child's mental state, as expected.

**Relationships with social support.** As expected, correlation results from the Medical Outcome Study Social Support Survey (MOS-SSS) subscales varied across the PRFQ-18 subscales. The PM subscale was negatively correlated to tangible support ( $r_{\text{males}} = -.27$ ;  $r_{\text{females}} = -.13$ ), emotional-information ( $r_{\text{males}} = -.21$ ;  $r_{\text{females}} = -.24$ ), affectionate support ( $r_{\text{males}} = -.24$ ;  $r_{\text{females}} = -.28$ ) and positive interaction ( $r_{\text{males}} = -.23$ ;  $r_{\text{females}} = -.23$ ) subscales. That is, those reporting less social support tended to reported higher levels of pre-mentalization. The IC subscale was positively correlated to tangible support ( $r_{\text{males}} = .27$ ;  $r_{\text{females}} = .17$ ), emotional- information ( $r_{\text{males}} = .19$ ;  $r_{\text{females}} = .19$ ), affectionate support ( $r_{\text{males}} = .28$ ;  $r_{\text{females}} = .22$ ) and positive interaction ( $r_{\text{males}} = .22$ ;  $r_{\text{females}} = .19$ ) subscales. Thus, those with relatively more social support reported higher levels of interest and curiosity in their child's state of mind. Lastly, the CMS subscale also had positive but non-significant correlations with social support subscales.

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**Relationships with parental coping.** In line with our hypothesis, the Parental Coping Scale (PCS) had positive correlations with IC ( $r_{\text{males}} = .37$ ) and CMS ( $r_{\text{males}} = .33$ ;  $r_{\text{females}} = .14$ ), and negative correlations among PM ( $r_{\text{males}} = -.21$ ;  $r_{\text{females}} = -.28$ ). See Table 2. In other words, those with relatively high ability to cope with parenting also display better levels of mentalization than those with relatively lower ability to cope.

**Relationships between mothers and fathers.** Interestingly, key findings identified a variety of commonalities between mothers and fathers. Both mothers and fathers had negative correlations among PM ( $r_{\text{males}} = -.65$ ;  $r_{\text{females}} = -.50$ ) and satisfaction. In addition, both mothers and fathers had positive correlations between both IC ( $r_{\text{males}} = .44$ ;  $r_{\text{females}} = .28$ ) and CMS ( $r_{\text{males}} = .43$ ;  $r_{\text{females}} = .32$ ) with efficacy. On the contrary, mothers had negative correlations ( $r_{\text{females}} = -.27$ ) and fathers had non-significant correlations between PM and efficacy. In correspondence to Luyten et al.'s (2009) findings, we found positive correlations among PM ( $r_{\text{males}} = .30$ ;  $r_{\text{females}} = .27$ ) and parental stress for both mothers and fathers. That is, higher perceived stressful situations was associated with low mentalization in parents.

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Table 3  
*Summary of Intercorrelations, Means and Stand Deviations for Scores on the PRFQ-18, MOS-SSS, PSOC, PSS, PCS in Males and Females*

Measure	1	2	3	4	5	6	7	8	9	10	11	12	13	14	M	SD
1. <b>PRFQ-18</b>	-	.62**	.40**	.80**	.00	.06	-.03	-.03	.01	-.14*	-.29**	.15*	.05	-.04	4.05	.80
2. PM	.73**	-	-.27**	.25**	-.24**	-.13	-.24**	-.28**	-.23**	-.51**	-.50**	-.27**	.27**	-.28**	2.53	1.42
3. IC	.63**	.05	-	.21**	.21**	.17*	.19**	.22**	.19**	.19*	.06	.28**	-.09	.11	5.43	1.06
4. CMS	.84**	.45**	.43**	-	.09	.10	.06	.06	.10	.13	-.04	.32**	-.13	.14*	4.20	1.35
5. <b>MOS-SSS</b>	.01	-.26**	.26**	.08	-	.85**	.94**	.91**	.94**	.46**	.35**	.39**	-.47**	.34**	3.70	.94
6. Tangible	-.02	-.27**	.27**	.03	.88**	-	.69**	.65**	.71**	.35**	.27**	.31**	-.38**	.24**	3.39	1.07
7. EI	.02	-.21*	.19*	.11	.91**	.71**	-	.82**	.88**	.42**	.32**	.36**	-.45**	.30**	3.73	1.08
8. Affectionate	.03	-.24**	.28**	.08	.93**	.75**	.81**	-	.83**	.44**	.35**	.35**	-.42**	.32**	3.93	1.00
9. PI	.01	-.23*	.22*	.07	.94**	.75**	.84**	.87**	-	.46**	.35**	.40**	-.47**	.36**	3.73	.99
10. <b>PSOC</b>	.11	-.54**	.34**	.07	.35**	.32**	.29**	.37**	.32**	-	.87**	.69**	-.63**	.51**	4.06	.74
11. Satisfaction	-.39**	-.65**	.09	-.21*	.16	.17	.11	.19**	.13	.81**	-	.26**	-.56**	.45**	3.93	.97
12. Efficacy	.40**	.07	.44**	.43**	.35**	.28**	.32**	.33**	.35**	.45**	-.15	-	-.42**	.34**	4.24	.85
13. <b>PSS Total</b>	.02	.30**	-.17	-.16	-.36**	-.30**	-.32**	-.37**	-.32**	-.57*	-.42**	-.32**	-	-.49**	1.56	.65
14. <b>PCS Total</b>	.18*	-.21*	.37**	.33*	.33**	.26**	.26**	.37**	.31**	.46**	.36**	.24**	-.36**	-	3.54	.89
M	4.11	3.12	5.03	4.18	3.61	3.50	3.58	3.74	3.62	3.86	3.66	4.11	1.59	3.42	-	-
SD	.91	1.44	1.15	1.15	.90	1.04	.97	.98	.96	.65	1.04	.88	.66	.90	-	-

*Note:* Intercorrelations for females (n= 186) are presented above the diagonal and intercorrelations for males (n= 120) are presented below the diagonal. Means and standard deviations for females are presented in the vertical columns and means and standard deviations for males are presented in the horizontal rows. PRFQ-18 = Parent Reflective Functioning Questionnaire; PM= Pre-Mentalizing; IC=Interest & Curiosity; CMS= Certainty of Mental States; MOS-SSS= Medical Outcome Study Social Support Survey; EI= Emotional-Information; PI= Positive Interaction; PSOC= Parenting Sense of Competence Scale; PSS = Perceived Stress Scale; PCS= Parenting Coping Scale. \*\*  $p < 0.01$  (2-tailed); \*  $p < 0.05$  (2-tailed)



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In addition, both mothers and fathers had negative correlations between PM and social support subtypes. The exception was tangible support which was not related to pre-mentalization in women. Overall, parents with more social support tended to have higher levels of reflective functioning. Finally, results showed negative correlations within PM and parental coping but only positive links with IC in fathers. Overall these findings suggest that parents with high RF capabilities are better able to cope with parenting but that the type of RF related to coping might vary between mothers and fathers.

### **Discussion**

The Parent Reflective Functioning Questionnaire is a brief self-report instrument designed to assess parent reflective functioning capacities (Luyten et al., 2009). Support for the validity of the PRFQ-18 has been presented previously in mothers and fathers (Luyten et al., 2009). To date we have been unable to find any independent studies examining the factor structure and testing the discriminant and construct validity of the PRFQ-18. The current study intended to further test the factor structure by means of a confirmatory factor analysis and to expand the discriminant and construct validity of the PRFQ-18 by exploring relationships between this measure and the MOS-SSS, PCOS, PCS and the PSS in a Canadian sample (n=306) of parents.

Results of this study extend and replicate earlier findings of the PRFQ-18 factor structure. Specifically, the CFA supported a three-factor structure capturing key characteristics of reflective functioning: a) pre-mentalizing, b) interest and curiosity, and, c) certainty of mental states. In addition, our results suggest items 11 and 18 may not be contributing to the measurement of PRFQ-18. Interestingly, items 11 and 18 are negatively worded and when removed, improved the PRFQ-18 model fit changes from

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poor to acceptable, as indicted in the fit measures. This may not be surprising since a mix of negative and positively worded items has the potential to cause problems with suggestions by Weems and Onwuegbuzie (2001) positively and negatively worded items may not be measuring the same underlying trait. Taking into consideration a better model fit and Weems and Onwuegbuzie's (2001) explanation, it seems removal items 11 and 18 may be appropriate when using the PRFQ-18 in the future. Weak loadings for items 11 and 18 were also reported in preliminary studies (Luyten, et al., 2009). However, given the early state of the PRFQ-18, Luyten et al. (2009) chose to leave the 2 items in the PRFQ-18. Our results suggest that it may be prudent to conduct further research examining the model fit of the 16-item measure reported here

In terms of predictive and discriminant validity, the PRFQ-18 subscales were correlated with the MOS-SSS, PCOS, PCS and PSS subscales in the expected directions. That is, the PRFQ-18 subscales were generally found to correlate with perceived social support, parental competence, and parent's perceptions of coping abilities and stressful situations in the right direction. Further, the intercorrelations among PRFQ-18 subscales were low to moderately correlated supporting a relative distinction among these subtypes adding support to the notion of 3 separate PRF concepts.

In terms of the PRFQ-18 construct validity support, pre-mentalizing had negative correlations with coping, efficacy and forms of social support. This result is similar to Sadler et al. (2016) findings that individuals capable of perceiving themselves as parents and their relationships with their child will seek out social support. In addition, PM was seen to have a positive relationship with satisfaction and perceived stress. These results

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are comparable to Rosen's (2013) findings that identify parents with low RF as being unable to imagine the type of support they would need and if it would be available.

Our results identified IC as positively correlated with parental coping, emotional-information, affectionate support, positive interaction, tangible support and efficacy. These outcomes match Rosen's (2013) findings that suggest parents with greater levels of parenting coping abilities and an awareness of stress display higher levels of RF, influencing how they feel about their parenting capabilities. On the other hand, IC was negatively correlated to perceived stress and satisfaction. That is, a parent's awareness and curiosity of a child's mental state is relatively low among those reporting higher levels of stress and dissatisfaction with their parenting. These results are consistent with research and theory arguing that stress can impair one's mentalization (Freeman, 2016). This consistency adds construct validity support to the PRFQ-18 measure.

Furthermore, CMS was positively correlated with satisfaction, efficacy, social support types and coping. These results confirm that a parent's perception that their thoughts about their child's mental states are accurate contributes to their feelings of satisfaction, parental competence, and ability to manage and cope with parenting. In contrast, the CMS was found to have non-significant negative associations with perceptions of stress. This suggests that stress may have less of an impact on this form of reflective functioning. This result requires further study, since it may speak to how specific forms of reflective functioning operate under different circumstances. In sum, our results show that PRFQ subscales are generally related to other social cognitive variables as one would expect based upon the literature, adding support for the construct validity of the measure. Although the PRFQ-18 is a fairly new measure within the field of

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psychology (De Roo et al., 2016), our results are consistent with those reported by Luyten et al. (2009).

Lastly, we identified both similarities and difference among mothers and fathers in terms of PRFQ correlates. In general, both mothers and fathers with high RF had lower levels of parental stress, and more social support, satisfaction, efficacy and better coping. However, some differences in terms of how RF operates in terms of coping and competence among men and women were noted here. Specifically, men who reported good coping with parenting reported more interest and curiosity in their child's mental state, more certainty around understanding their child's mental state, and better mentalization. Another notable difference was the relationship between parental efficacy and PM. Women with more parental efficacy had lower levels of PM, and thus better mentalization. In contrast, PM was unrelated to father's efficacy. For women, good coping was primarily related to better mentalization, as seen in lower PM scores. However, for fathers, satisfaction with parenting was strongly negatively correlated with PM showing that fathers with a great deal of satisfaction with being a parent also have a better ability to mentalize.

### **Limitations and Future Directions**

Advantages of self-report measures include time efficiency, cost effectiveness and ease of administration. Self-report measures are reported to be valid measures in examining cognitive constructs, emotions and moods (Haefel & Howard, 2010). Yet, one issue concerning self-report measures is the level of insight required from an individual (Haefel & Howard, 2010). Other cautions against self-report measures include potential inaccuracy in participants' answers and various response styles influencing

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results (Paulhus & Vazire, 2007). To further support the validity of the PRFQ and to allay concerns about self-report, future research should consider including a gold standard measure such as the Parent Development Interview to compare these results observed here in order to uncover if the PRFQ-18 can offer insights similar to current gold standard measures. In addition, this research would provide more evidence as to the reliability and validity of the PRFQ-18.

Ideally an independent sample should be used as a follow up to our CFA to determine the extent to which PRFQ-18 subscales are related to theoretically meaningful constructs. However, a follow up study should attempt to replicate our findings to see if the removal of items 11 and 18 is supported in other samples. Considering Luyten et al. (2009) had similar findings to this study, we would expect this result to hold. Lastly, variances among mothers and fathers suggest further exploration between mothers, fathers, RF and cognitive variables is needed. That is, our results suggest that RF subtypes may be differentially influenced by the social and psychological parenting context.

**References**

- Ainsworth, M., Blehar, M. C., Waters, E., & Wall, S. (1978). *Patterns of attachment: A psychological study of the strange situation*. New York: Erlbaum.
- Arbuckle, J. L. (2014). Amos (Version 23.0) [Computer Program]. Chicago: IBM SPSS.
- Bain, K. (2014). "New beginnings" in South African shelters for the homeless: Piloting of a group psychotherapy intervention for high-risk mother-infant dyads. *Infant Mental Health Journal*, 35(6), 591-603. <http://10.1002/imhj.21457>
- Bottos, S., & Nilsen, E. (2014). The cross-generational effects of maternal maltreatment histories: Implications for children's mentalizing development. *Child Abuse and Neglect*, 38(6), 1094-1105. <http://10.1016/j.chiabu.2014.02.012>
- Cohen, S., Kamarck, T., & Mermelstein, R. (1983). A global measure of perceived stress. *Journal of Health & Social Behavior*, 24(4), 385-396. Retrieved from <http://0-eds.a.ebscohost.com>
- Cohen, S. & Williamson, G. (1988). Perceived stress in a probability sample of the United States. In S. Spacapan & S. Oskamp (Eds.). *The Social Psychology of Health*. Newbury Park, CA: Sage
- Fonay, P., Gergely, G., & Target, M. (2007). The parent-infant dyad and the construction of the subjective self. *Journal of Child Psychology & Psychiatry*, 48(3/4), 288-328. <http://10.1111/j.1469-7610.2007.01727>
- Fonagy, P., Steele, M., Steele, H., Moran, G. & Higgitt, A. (1991). The capacity for understanding mental states: The reflective self in parent and child and its significance for security of attachment. *Infant Mental Health Journal*, 12 (3), 201-218. [http://10.1002/1097-0355\(199123\)1](http://10.1002/1097-0355(199123)1)

## REFLECTIVE FUNCTIONING

- Fonagy, P., Target, M., Steele, H. & Steele, M. (1998). *Reflective-functioning manual: For application to adult attachment interviews (Version 5)*. Retrieved from <http://mentalizacion.com>
- Freeman, C. (2016). What is mentalizing? An overview. *British Journal of Psychotherapy*, 32(2), 189-201. <http://10.1111/bjp.12220>
- Gadermann, A. M., Guhn, M., Zumbo, B. D., & Columbia, B. (2012). Estimating ordinal reliability for Likert-type and ordinal item response data: A conceptual, empirical, and practical guide. *Practical Assessment, Research & Evaluation*, 17(3), 1-12.
- Ghate, D. & Moran, P. (2013). *The parent coping scale (PCS): An overarching measure of impact for parenting support services working to improve parental self-efficacy*. Retrieved from [www.cevi.org.uk](http://www.cevi.org.uk)
- Gilmore, L., & Cuskelly, M. (2009). Factor structure of the parenting sense of competence scale using a normative sample. *Child: Care, Health & Development*, 35(1), 48-55. <http://10.1111/j.1365-2214.2008.00867.x>
- Gjesfjeld, C. D., Greeno, C. G., & Kim, K. H. (2008). A confirmatory factor analysis of an abbreviated social support instrument: The MOS-SSS. *Research on Social Work Practice*, 18(3), 231-237. <http://10.1177/1049731507309830>
- Gray, S. O. (2015). Widening the circle of security: A quasi-experimental evaluation of attachment-based professional development for family child care providers. *Infant Mental Health Journal*, 36(3), 308-319. <http://10.1002/imhj.21513>
- Grienenberger, J., Kelly, K., & Slade, A. (2005). Maternal reflective functioning, mother–infant affective communication, and infant attachment: Exploring the link between mental states and observed caregiving behavior in the intergenerational

## REFLECTIVE FUNCTIONING

- transmission of attachment. *Attachment & Human Development*, 7(3), 299-311.  
<http://10.1080/14616730500245963>
- Haefffel, G. J., & Howard, G. S. (2010). Self-report: Psychology's four-letter word. *American Journal of Psychology*, 132(2), 181-188. <http://10.5406/amerjpsyc.123.2.0181>
- Johnston, C., & Mash, E. J. (1989). A measure of parenting satisfaction and efficacy. *Journal of Clinical Child Psychology*, 18(2), 167-175. Retrieved from <http://0-eds.a.ebscohost.com>.
- Landy, S. (2009). *Pathways to competence: Encouraging healthy social and emotional development in young children (second edition)*. Baltimore, MD: Paul H. Brookes Publishing
- Luyten, P., Mayes, L., Nijssen, L., & Fonagy, P. (n.d.). *The parental reflective functioning questionnaire: Development and preliminary validation*. Manuscript submitted for publication
- Luyten, P., Mayes, L.C., Sadler, L., Fonagy, P., Nicholls, S., Crowley, M. (2009). *The parental reflective functioning questionnaire-1 (PRFQ-18-1)*. Leuven: University of Leuven
- Mares, S., Newman, L., & Warren, B. (2005). *Clinical skills in infant mental health*. Camberwell, AU: ACER Press.
- Ohan, J. L., Leung, D. W., & Johnston, C. (2000). The parenting sense of competence scale: Evidence of a stable factor structure and validity. *Canadian Journal of Behavioural Science / Revue Canadienne Des Sciences Du Comportement*, 32(4), 251-261. <http://10.1037/h0087122>



## REFLECTIVE FUNCTIONING

- Ordway, M. R., Sadler, L. S., Dixon, J., Close, N., Mayes, L. & Slade, A. (2014). Lasting effects of an interdisciplinary home visiting program on child behavior: Preliminary follow-up results of a randomized trial. *Journal of Pediatric Nursing*, 29, 3-13. doi:10.1016/j.pedn.2013.04.006
- Paulhus, D., & Vazire, S. (2007). In R. W. Robins, R. C. Fraley, & R. F. Krueger. *Handbook of research methods in personality psychology. [electronic resource]*. New York: Guilford Press.
- Pontoppidan, M. (2015). The effectiveness of the incredible years™ parents and babies program as a universal prevention intervention for parents of infants in Denmark: Study protocol for a pilot randomized controlled trial. *Trials*, 16(1), 1-11. <http://10.1186/s13063-015-0859-y>
- Ramsauer, B., Lotzin, A., Mühlhan, C., Romer, G., Nolte, T., Fonagy, P. & Powell, B. (2014). A randomized controlled trial comparing circle of security intervention and treatment as usual as interventions to increase attachment security in infants of mentally ill mothers: Study protocol. *BMC Psychiatry*, 14, 1-23. <http://10.1186/1471-244X-14-24>
- Rogers, H., & Matthews, J. (2004). The parenting sense of competence scale: Investigation of the factor structure, reliability, and validity for an Australian sample. *Australian Psychologist*, 39(1), 88-96. <http://10.1080/00050060410001660380>
- Rosen, J. B. (2013). *Parental reaction to a diagnosis of autism: How resolution relates to parental reflective functioning and parenting stress*. (Doctoral Dissertation). Retrieved from ProQuest Dissertations & Theses Global. (Order No. 3570196).

## REFLECTIVE FUNCTIONING

Rutherford, H. J., Goldberg, B., Luyten, P., Bridgett, D. J., & Mayes, L. C. (2013).

Parental reflective functioning is associated with tolerance of infant distress but not general distress: Evidence for a specific relationship using a simulated baby paradigm. *Infant Behavior and Development*, *36*, 635-641.

<http://0.1016/j.infbeh.2013.06.008>

Sadler, L. S., Novick, G., & Meadows-Oliver, M. (2016). "Having a baby changes everything" Reflective functioning in pregnant adolescents. *Journal of Pediatric Nursing*, *31*e219-e231. doi:10.1016/j.pedn.2015.11.011

Sadler, L. S., Slade, A., Close, N., Webb, D. L., Simpson, T., Fennie, K., & Mayes, L. C. (2013). Minding the baby: Enhancing reflectiveness to improve early health and relationship outcomes in an interdisciplinary home-visiting program. *Infant Mental Health Journal*, *34*(5), 391-405. <http://10.1002/imhj.21406>

Siegel, D. J. (1999). *The developing mind: Toward a neurobiology of interpersonal experience*. New York, NY: The Guilford Press

Slade, A. (2005). Parental reflective functioning: An introduction. *Attachment & Human Development*, *7*(3), 269-281. <http://10.1080/14616730500245906>

Slade, A., Belsky, J., Aber, J. L., & Phelps, J. L. (1999). Mothers' representations of their relationships with their toddlers: Links to adult attachment and observed mothering. *Developmental Psychology*, *35*(3), 611-619. <http://10.1037/0012-1649.35.3.611>

Slade, A., Grienenberger, J., Bernbach, E., Levy, D., & Locker, A. (2005). Maternal reflective functioning, attachment, and the transmission gap: A preliminary study.

## REFLECTIVE FUNCTIONING

*Attachment & Human Development*, 7(3), 283-298.

<http://10.1080/14616730500245880>

Sleed, M., Baradon, T., & Fonagy, P. (2013). New beginnings for mothers and babies in prison: A cluster randomized controlled trial. *Attachment & Human Development*, 15(4), 349-367. <http://10.1080/14616734.2013.782651>

Spinelli, J. F. (2009). *The relationship between ego mechanisms of defense and reflective functioning*. (Doctoral dissertation). Retrieved from ProQuest Dissertations & Theses Global. (Order No. 3388762).

Srinivasan, C. A. (2005). *The relationship between reflective function and psychopathology in survivors of childhood abuse*. (Doctoral dissertation). Retrieved from ProQuest Dissertations & Theses Global. (Order No. 3184393).

Stacks, A. M., Muzik, M., Wong, K., Beeghly, M., Huth-Bocks, A., Irwin, J. L. & Rosenblum, K. L. (2014). Maternal reflective functioning among mothers with childhood maltreatment histories: Links to sensitive parenting and infant attachment security. *Attachment & Human Development*, 16(5), 515-533. <http://10.1080/14616734.2014.935452>

Suchman, N. E., DeCoste, C., Leigh, D. & Borelli, J. (2010). Reflective functioning in mothers with drug use disorders: Implications for dyadic interactions with infants and toddlers. *Attachment & Human Development*, 12(6), 567-585. <http://10.1080/14616734.2010.501988>

Thompson, R. A. (2008). Early attachment and later development. In J. Cassidy, & P. R. Shaver (Eds.), *Handbook of attachment*, (pp. 348-365). New York, NY: The Guilford Press.

## REFLECTIVE FUNCTIONING

Weems, G. H., & Onwuegbuzie, A. J. (2001). The impact of midpoint responses and reverse coding on survey data. *Measurement and Evaluation in Counseling and Development, 34*(3), 166-176.

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Table 1

*Demographics of the Sample Population*

Variable	Males (n=120)		Females (n=186)		Total (n=306)	
	N	%	N	%	N	%
<b>Age</b>						
20-29	15	12.5	33	17.7	48	15.7
30-39	60	50.0	91	48.9	151	49.3
40-49	36	30.0	55	29.6	91	29.7
50-60	9	7.5	7	3.8	16	5.2
<b>Age of Child(ren) in household</b>						
0-3	36	30.0	83	44.6	119	38.9
4-6	52	43.3	64	34.4	116	37.9
7-9	49	40.8	64	34.4	113	36.9
10-12	37	30.8	65	34.9	102	33.3
13 and older	23	19.2	45	24.2	68	22.2
<b>Children in Household</b>						
Biological	118	38.6	184	60.1	302	98.7
Step	37	12.1	52	17.0	89	29.1
Foster	32	10.5	51	16.7	83	27.1
Adopted	32	10.5	51	16.7	83	27.1
<b>Education</b>						
Less than high school degree	4	3.3	6	3.2	10	3.2
High school degree or equivalent	20	16.7	26	14.0	46	15.0
Some college but no degree	11	9.2	29	15.6	40	13.1
Technical degree or diploma	26	21.7	44	23.7	70	22.9
Bachelor degree	44	36.7	59	31.7	103	33.7
Graduate degree	15	12.5	22	11.8	37	12.1
<b>Household Income</b>						
\$0- \$24,999	6	5.0	14	7.5	20	6.5
\$25,000- \$49,999	16	13.3	36	19.4	52	17.0
\$50,000-\$74,999	31	25.8	39	21.0	70	22.9
\$75,000-\$99,999	26	21.7	37	19.9	63	20.6
\$100,000-\$124,999	18	15.0	25	13.4	43	14.1
\$125,000-\$149,999	11	9.2	8	4.3	19	6.2
\$150,000-\$174,999	2	1.7	4	2.2	6	2.0
\$175,000-\$199,999	5	4.2	8	4.3	13	4.2
\$200,000 and up	2	1.7	1	.5	3	1.0
Prefer not to answer	3	2.5	14	7.5	17	5.56

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### Relationship Status

Married	90	75.0	131	70.4	221	72.2
Widowed	1	0.8	1	0.5	2	1.0
Divorced	7	5.8	6	3.2	13	4.2
Separated	3	2.5	10	5.4	13	4.2
Common-law	12	10.0	21	11.3	33	10.8
Single, never married	6	5.0	16	8.6	22	7.2
Open relationship	1	0.8	1	0.5	2	1.0

### Residence-Province

Alberta	14	11.7	21	11.3	35	11.4
British Columbia	9	7.5	32	17.2	41	13.4
Saskatchewan	4	3.3	7	3.8	11	3.6
Manitoba	5	4.2	11	5.9	16	5.2
Ontario	51	42.5	84	45.2	135	44.1
Quebec	26	21.7	16	8.6	42	13.7
New Brunswick	3	2.5	3	1.6	6	2.0
Newfound Land	0	0.0	4	2.2	4	1.3
Nova Scotia	6	5.0	8	4.3	14	4.6

### Race/Ethnicity

African	2	1.7	0	0.0	2	0.6
Arabic	1	0.8	1	0.5	2	0.6
Armenian	0	0.0	1	0.5	1	0.3
Asian	4	3.3	10	5.4	14	4.1
Black	1	0.8	1	0.5	2	0.6
Canadian	6	5.0	14	7.5	20	5.8
Caucasian	80	66.7	117	62.9	198	57.6
Chinese	3	2.5	11	5.9	14	4.1
East Asian	1	0.8	0	0.0	1	0.3
European	3	2.5	0	0.0	3	0.9
Fijian	0	0.0	1	0.5	1	0.3
Filipino	0	0.0	2	1.1	2	0.6
First Nations	0	0.0	4	2.2	4	1.2
French Canadian	2	1.7	0	0.0	2	0.6
German	0	0.0	1	0.5	1	0.3
Indian	5	4.1	1	0.5	6	1.8
Korean	1	0.8	1	0.5	2	0.6
Latin	1	0.8	2	1.1	3	0.9
Middle Eastern	1	0.8	0	0.0	1	0.3
Mixed	3	2.5	3	1.6	7	2.0
Pakistani	0	0.0	1	0.5	1	0.3
Prefer not to say	3	2.5	9	4.8	12	3.5
South Asian	2	1.7	4	2.2	6	1.7

## REFLECTIVE FUNCTIONING

Vietnamese	0	0.0	1	0.5	1	0.3
West Asian	1	0.8	1	0.5	2	0.6

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**CHAPTER 4. DISCUSSION AND FUTURE IMPLICATIONS**

Reflective functioning is the capacity for an individual to understand one's own and another's mental state (Fonagy et al., 1991). This ability allows individuals to recognize, organize and interpret the underlying feelings, thoughts, beliefs and desires to specific behaviours; therefore, helping individuals choose how they react (Fonagy et al., 1991). Reflective functioning is thought to be developed in a child's early interactions with primary caregivers, environment, and social encounters (Fonagy et al., 1991; Fonagy et al., 1998). While a child experiences the world, the child looks for security and protection from a figure that is responsive and available (Bowlby, 1982). As this proximity seeking increases, an attachment occurs between the child and attachment figure (Ainsworth & Bell, 1970). Overall, RF plays a key role in the development of secure parent-child attachments.

It is for these reasons, programs such as the 8-week Circle of Security Parenting program aim to increase RF. COS-P has the potential to enhance RF by helping parents learn how to interpret their child's behaviour and the attachment need being expressed by the child, how to be aware of their own reactions to their child, and how to respond effectively to challenging child behaviours while holding their own and their child's mental state (Cooper et al., 2009). The goal of the COS-P is to provide a space for parents to improve RF so as to foster and sustain secure parent-child attachments (Cooper et al., 2009). To evaluate this 8-week intervention, an appropriate RF measure is needed. Unfortunately, at this point in time, no synthesis of the RF measures available in the field of psychology exists.



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The purpose of this knowledge synthesis was to identify the characteristics of the RF measures existing in the psychology literature; thus, leading to the independent examination of the PRFQ. Specifically, four questions guided the literature review. A brief summary of findings is provided.

*What RF measures are available in the field of psychology?* A systematic literature review revealed 11 different RF measures among 86 studies examining RF in adults or parents over the age of 18. These RF measures fell into one of the three categorizations: 1) gold standard measures, 2) booming measures, and, 3) one-hit measures. RF measures considered as gold standard are extensively utilized in research and included the Parent Development Interview (Slade et al., 1999; Slade et al., 2005) and the Reflective Functioning Scale (Fonagy et al., 1991; Fonagy et al., 1996; Fonagy et al., 1998). Booming measures are thought to be RF measures that are growing in development. These included the Reflective Functioning Questionnaire (Fonagy & Ghinai, 2008 as cited in Mouton- Perkins, et al., 2011) and the Parent Reflective Functioning Questionnaire (Luyten, et al., 2009). One-hit measures are deemed as measures that did not move past preliminary stages of development. These included the Reflective Functioning Rating Scale (Meehan et al., 2009), the Brief Reflective Functioning Interview (Rudden, et al., 2005 as cited in Ruitimann & Meehan, 2012), the Reflective Functioning Questionnaire (Levy et al., 2005 as cited in Hill, et al., 2007), the Caregiver Reflective Functioning Scale (Gilbert et al., 2007 as cited in Gilbert, 2008), the Panic Specific Reflective Functioning Scale (Rudden et al., 2006), the Computerized Text Analysis of the Reflective Functioning System (Fertuck, et al., 2012), and lastly, the Maternal Reflective Functioning Scale (Slade & Patterson, 2005 as cited in Daley, 2013).

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The characteristics, strengths, weaknesses, and psychometrics of each RF measure were described.

*Which measure is most appropriate to utilize in evaluating the COS-P?* In addition to the features of each RF measures, the systematic literature review recognized three careful considerations: 1) cost, 2) time, and, 3) applicability. Cost and time includes administration, training, coding and scoring. Applicability refers to the population the RF measure is specifically designed for. After carefully examining each RF measure and considering cost, time and applicability, it appeared that the PRFQ-18 was the most suitable RF measure for evaluating the 8-week COS-P program. The 18-item PRFQ is a quick paper and pencil self-report measure; assessing 3 key characteristics of RF. In addition, there are no cost requirements for training, administration, coding or scoring, and is applicable to the parent population taking part in the COS-P program.

*Does the PRFQ-18 measure three different characteristics of reflective functioning?* Due to the lack of independent studies on the PRFQ-18, a confirmatory factor analysis of the PRFQ-18 was conducted and confirmed the 3-factor solution. The three factors included: 1) Pre-Mentalizing, 2) Interest and Curiosity, and, 3) Certainty of Mental States. Similar to Luyten et al.'s (2009) findings, items 11 and 18 showed weak factor loadings. Further investigation identified that the removal of these items produced a stronger model fit.

*Are there theoretically meaningful relationships between the PRFQ and the Medical Outcome Study Social Support Survey, Parenting Sense of Competence Scale, Perceived Stress Scale, and Parenting Coping Scale?* Bivariate correlations between the PRFQ-18 and the MOS-SSS, PSOC, PSS, and PCS confirmed that the PRFQ-18 is

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capable of measuring RF independently. In addition, theoretically meaningful correlations were identified between the PRFQ-18 subscales and stress, parental competence, parental coping and social support. No major differences between mothers and father were found within these correlations.

### **Significance of Findings**

The most substantial finding from the study *A Review of Reflective Functioning Measures for Evaluating Relationship-Based Parenting Programs* is the lack of “quality” RF measures available in the field of psychology; the term quality suggesting that measures have been moderately utilized in research and literature, independently examined to assess reliability and validity, and implemented in a variety of topics. Applying these criteria, only 4 measures met these standards: 1) Parent Development Interview, 2) Reflective Functioning Scale, 3) Parent Reflective Functioning Questionnaire-18, and, 4) Reflective Functioning Questionnaire. Considering the significant role RF plays in parenting, child development, and parent-child attachments, it seems surprising that more RF measures have not been further developed, tested and utilized in evaluation research. Furthermore, only one RF measure, PRFQ-18, specifically assesses parents; revealing the early stages of parent RF measurement.

On the other hand, this systematic literature review also identified possible causes for the deficiency of quality RF measures. Many of RF measures (n=5) were unobtainable via literature and direct contact; making them unavailable for clinicians and researchers. Several preliminary studies examining RF measures were difficult to locate; indicating a lack of networking among researchers and clinicians. A number of RF measures were discovered in thesis and/or dissertation manuscripts; therefore, not

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published in a peer reviewed a journal. Furthermore, gold standard measures have been readily available for quite some time in the field of psychology; thus, establishing credibility and the availability of psychometric properties. Providing this information makes them more attractive to researchers and clinicians compared to other RF measures.

In addition to these findings, this systematic literature review provided synthesized information for clinicians and researchers in the field of psychology and other fields as well. It provides the first critical review and the categorization of each RF measure. It offers an index and the details of studies examining RF in adults and parents over the age of 18. It provides the cost, time and applicability requirements entailed by each RF. All this information enables clinicians and researchers to make an informed decision when choosing a RF measure.

An important discovery revealed in the *Examining the Construct Validity of the Parent Reflective Functioning Questionnaire* study was the weak loadings for items 11 and 16. Unlike Luyten et al.'s (2009) preliminary assessment, this study identified an improved model fit with the removal of these items. This finding recognizes that the PRFQ-18 could be further enhanced to better assess PRF. Another difference our construct validity study demonstrated was our finding of similarity between mothers and fathers. This is in contrast to Luyten et al.'s perspective that parent gender influences the allocation of attention towards one's child; thus, influencing RF levels. Our results suggest that neither a parent's gender nor the amount of time spent with their child influences their ability to hold their own or their child's mental states, their level of interest in their child's state of mind, and their level of certainty in regards to their child's mental state. Additionally, this research provides an independent study of the PRFQ-18

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psychometrics; warranting its reliability and validity. Furthermore, results clarified that parent RF is an independent variable with relationships with stress, social support, parental coping, and parental competence. This provides insights to the complexity of RF and illustrates that parent's ability to hold their own and their child's mental states are connected to different cognitive variables.

### **Implications for Future Research**

It appears that a clear expansion of the *A Review of Reflective Functioning Measures for Evaluating Relationship-Based Parenting Programs* study entails independent studies on RF measures. Independent studies would provide further assessment of the reliability and validity of RF measures; identifying their value in the field of psychology. Future research based on my second manuscript, *Examining the Construct Validity of the Parent Reflective Functioning Questionnaire*, includes testing a 16-item version of the PRFQ-18. This examination would provide evidence to support our findings and move forward to an improved reliable and valid model fit. In addition, given the complexity of gold standard RF measures, future research would benefit from comparing results between the PRFQ and the PDI. This evaluation could provide insight as to whether a paper and pencil RF measure delivers comparable results to a time and resource-intensive narrative based assessment. Furthermore, seeing as this study is the first independent study to compare results among mothers and fathers, further research should explore the relationship between gender and RF. These outcomes could support future findings between mothers and fathers.

## REFLECTIVE FUNCTIONING

### References

- Ainsworth, M. S. (1969). Object relations, dependency, and attachment: A theoretical review of the infant-mother relationship. *Child Development*, 40(4), 969-1025.  
<http://10.2307/1127008>
- Ainsworth, M. S., & Bell, S. M. (1970). Attachment, exploration, and separation: Illustrated by the behavior of one-year-olds in a strange situation. *Child Development*, 41(1), 49-67. [http:// 10.2307/1127388](http://10.2307/1127388)
- Ainsworth, M.S., Blehar, M. C., Waters, E., & Wall, S. (1978). *Patterns of attachment: Psychological study of the Strange Situation*. Hillsdale, NJ: Erlbaum.
- Barlow, J., Bergman, H., Korner, H., Yinghui, W., & Bennett, C. (2016). Group-based parent training programmes for improving emotional and behavioural adjustment in young children. *Cochrane Database of Systematic Reviews*, (8)1-115.  
<http://10.1002/14651858.CD003680.pub3>
- Bowlby, J. (1982). Attachment and loss: Retrospect and prospect. *American Journal of Orthopsychiatry*, 52(4), 664-678. <http://10.1111/j.1939-0025.1982.tb01456.x>
- Bretherton, I., NcNew, S., & Beeghley-Smith, M. (1987). Early person knowledge as expressed in gestural and verbal communication: When do infants acquire a 'theory of mind'? In J. Oates & S. Sheldon (Eds.), *Cognitive development in infancy* (pp. 219-246). Hillsdale, NJ: Lawrence Erlbaum Associates.
- Campbell, D.T., & Fiske, D.W. (1959). Convergent and discriminant validation by the mulitrait-multimethod matrix, *Psychological Bulletin*, 56(2), 81-105.  
<http://dx.doi.org/10.1037/h0046016>

## REFLECTIVE FUNCTIONING

Cohen, S., Kamarck, T., & Mermelstein, R. (1983). A global measure of perceived stress.

*Journal of Health & Social Behavior*, 24(4), 385-396. Retrieved from <http://0-eds.a.ebscohost.com>

Colliver, J. A., Conlee, M. J., & Verhulst, S. J. (2012). From test validity to construct validity ... and back? *Medical Education*, 46(4), 366-371. <http://10.1111/j.1365-2923.2011.04194.x>

Cooper, G., Hoffman K. T., Powell B. (2009). *Circle of Security: COS-P Facilitator DVD Manual 5.0*. Spokane, WA: Marycliff Institute

Coyne, J. (2013). Parenting from the outside-in: Reflections on parent training during a potential paradigm shift. *Australian Psychologist*, 48(5), 379-387. <http://10.1111/ap.12010>

Cronbach, L. J., & Meehl, P. E. (1955). Construct validity in psychological tests. *Psychological Bulletin*, 52(4), 281-302. <http://10.1037/h0040957>

Ensink, K., Normandin, L., Plamondon, A., Berthelot, N., & Fonagy, P. (2016). Intergenerational pathways from reflective functioning to infant attachment through parenting. *Canadian Journal of Behavioural Science / Revue Canadienne Des Sciences Du Comportement*, 48(1), 9-18. <http://10.1037/cbs0000030>

Fertuck, E. A., Mergenthaler, E., Target, M., Levy, K. N., & Clarkin, J. F. (2012). Development and criterion validity of a computerized text analysis measure of reflective functioning. *Psychotherapy Research*, 22(3), 298-305. <http://10.1080/10503307.2011.650654>

## REFLECTIVE FUNCTIONING

Flavell, J. H., Green, F. L., & Flavell, E. R. (1986). Development of knowledge about the appearance-reality distinction. *Monographs of the Society for Research in Child Development*, 51(1), 1-69. <http://10.1111/1540-5834.ep11890642>

Fonagy, P., Steele, M., Moran, G., Steele, H., & Higgitt, A. (1993). Measuring the ghost in the nursery: An empirical study of the relation between parents' mental representations of childhood experiences and their infants' security of attachment. *Journal of the American Psychoanalytic Association*, 41(4), 957-989. <http://10.1177/000306519304100403>

Fonagy, P., Steele, M., Steele, H., Moran, G. & Higgitt, A. (1991). The capacity for understanding mental states: The reflective self in parent and child and its significance for security of attachment. *Infant Mental Health Journal*, 12 (3), 201-218. [http:// 10.1002/1097-0355\(199123\)1](http://10.1002/1097-0355(199123)1)

Fonagy, P., Leigh, T., Steele, M., Steele, H., Kennedy, R., Mattoon, G., & Gerber, A. (1996). The relation of attachment status, psychiatric classification, and response to psychotherapy. *Journal of Consulting and Clinical Psychology*, 64(1), 22-31. <http://10.1037/0022-006X.64.1.22>

Fonagy, P., Target, M., Steele, H. & Steele, M. (1998). *Reflective-functioning manual: For application to adult attachment interviews (Version 5)*. Retrieved from <http://mentalizacion.com>

Ghate, D. & Moran, P. (2013). *The parent coping scale (PCS): An overarching measure of impact for parenting support services working to improve parental self-efficacy*. Retrieved from [www.cevi.org.uk](http://www.cevi.org.uk)



## REFLECTIVE FUNCTIONING

- Gilbert, J. L. (2008). *Reflective functioning and caregiver behavior: Development of caregiver reflective functioning scales (CRFS) for use with the Circle of Security Intervention (COSI)*. (Doctoral dissertation). Retrieved from Dissertation Abstracts International. (Order No. 3323375)
- Gioacchino Gelo, O. C. (2012). On research methods and their philosophical assumptions: "Raising the consciousness of researchers" again. *Psychotherapie Und Sozialwissenschaft: Zeitschrift Für Qualitative Forschung Und Klinische Praxis*, 14(2), 111-130. Retrieved from <https://www.formazionescienze sociali.unisalento.it>
- Gjesfjeld, C. D., Greeno, C. G., & Kim, K. H. (2008). A confirmatory factor analysis of an abbreviated social support instrument: The MOS-SSS. *Research on Social Work Practice*, 18(3), 231-237. [http:// 10.1177/1049731507309830](http://10.1177/1049731507309830)
- Grant, M. J., & Booth, A. (2009). A typology of reviews: An analysis of 14 review types and associated methodologies. *Health Information and Libraries Journal*, 26(2), 91-108. <http://10.1111/j.1471-1842.2009.00848.x>
- Grienenberger, J., Kelly, K., & Slade, A. (2005). Maternal reflective functioning, mother–infant affective communication, and infant attachment: Exploring the link between mental states and observed caregiving behavior in the intergenerational transmission of attachment. *Attachment & Human Development*, 7(3), 299-311. <http://10.1080/14616730500245963>
- Haefel, G. J., & Howard, G. S. (2010). Self-report: Psychology's four-letter word. *American Journal of Psychology*, 132(2), 181-188. <http://10.5406/amerjpsyc.123.2.0181>

## REFLECTIVE FUNCTIONING

- Hill, L. L., Levy, K. N., Meehan, K. B., & Reynoso, J. S. (2007). Reliability of a multidimensional measure for scoring reflective function. *Journal of the American Psychoanalytic Association, 55*(1), 309-313. <http://10.1177/00030651090570011008>
- Johnston, C., & Mash, E. J. (1989). A measure of parenting satisfaction and efficacy. *Journal of Clinical Child Psychology, 18*(2), 167-175. Retrieved from <http://0-eds.a.ebscohost.com>
- Kastner, M., Antony, J., Soobiah, C., Straus, S. E., & Tricco, A. C. (2016). Conceptual recommendations for selecting the most appropriate knowledge synthesis method to answer research questions related to complex evidence. *Journal of Clinical Epidemiology, 73*, 43-49. <http://10.1016/j.jclinepi.2015.11.022>
- Krauss, S. E. (2005). Research paradigms and meaning making: A primer. *The Qualitative Report, 10*(4), 758-770. Retrieved from <http://nsuworks.nova.edu/tqr/vol10/iss4/7>
- Landy, F. J. (1986). Stamp collecting versus science: Validation as hypothesis testing. *American Psychologist, 41*(11), 1183-1192. <http://10.1037/0003-066X.41.11.1183>
- Leedy, P., & Ormrod, J. (2013). *Practical research: Planning and design (10<sup>th</sup> ed.)*. New Jersey:Pearson Education Inc.
- Luyten, P., Mayes, L., Nijssen, L & Fonagy, P. (submitted for publication). *The parental reflective functioning questionnaire: Development and preliminary validation*. Manuscript submitted for publication

## REFLECTIVE FUNCTIONING

- Luyten, P., Mayes, L.C., Sadler, L., Fonagy, P., Nicholls, S., Crowley, M., Vesper, A., Mobley, A., Stewart, T., Close, N. & Slade A. (2009). *The parental reflective functioning questionnaire-1 (PRFQ-1)*. Leuven: University of Leuven.
- MacLure, K., Paudyal, V., & Stewart, D. (2016). Reviewing the literature, how systematic is systematic? *International Journal of Clinical Pharmacy*, 38(3), 685-694. <http://10.1007/s11096-016-0288-3>
- Main, M., & Solomon, J. (1986). Discovery of an insecure-disorganized/disoriented attachment pattern. In T. B. Brazelton, M. W. Yogman, T. B. Brazelton, & M. W. Yogman (Eds.), *Affective development in infancy* (pp. 95-124). Westport, CT, US: Ablex Publishing.
- Mallidou, A. (2014). Mapping the landscape of knowledge synthesis. *Nursing Management - UK*, 21(5), 30-39. <http://10.7748/nm.21.5.30.e1242>
- Meehan, K. B., Levy, K. N., Reynoso, J. S., Hill, L. L., & Clarkin, J. F. (2009). Measuring reflective function with a multidimensional rating scale: Comparison with scoring reflective function on the AAI. *Journal of the American Psychoanalytic Association*, 57(1), 208-213. <http://10.1177/00030651090570011008>
- Moher, D., Liberati, A., Tetzlaff, J., & Altman, D. (2009). Preferred reporting items for systematic reviews and meta-analyses: The PRISMA statement. *Physical Therapy*, 89(9), 873-880. <http://10.1371/journal.pmed1000097>
- Moulton-Perkins, A., Rogoff, S., Luyten P., & Fonagy, P. (2011). *Development and validation of a new self-report measure of mentalisation: The 54-item reflective*

## REFLECTIVE FUNCTIONING

*function questionnaire* [Abstract]. Research Conference of the British Association for Counselling & Psychotherapy, Liverpool

Paulhus, D., & Vazire, S. (2007). In R. W. Robins, R. C. Fraley, & R. F. Krueger..

*Handbook of research methods in personality psychology. [electronic resource].*

New York: Guilford Press.

Rudden, M., Milrod, B., Target, M., Ackerman, S., & Graf, E. (2006). Reflective

functioning in panic disorder patients: A pilot study. *Journal of the American Psychoanalytic Association, 54*(4), 1339-1343.

[http:// 10.1177/00030651060540040109](http://10.1177/00030651060540040109)

Rutimann, D. D., & Meehan, K. B. (2012). Validity of a brief interview for assessing

reflective function. *Journal of the American Psychoanalytic Association, 60*(3),

577-589. <http://10.1177/0003065112445616>

Sanders, M. R., Kirby, J. N., Tellegen, C. L., & Day, J. J. (2014). The Triple P-Positive

Parenting Program: A systematic review and meta-analysis of a multi-level system of parenting support. *Clinical Psychology Review, 34*, 337-357.

<http://10.1016/j.cpr.2014.04.003>

Sandler, I., Ingram, A., Wolchik, S., Tein, J., & Winslow, E. (2015). Long-term effects of

parenting-focused preventive interventions to promote resilience of children and adolescents. *Child Development Perspectives, 9*(3), 164-171.

<http://10.1111/cdep.12126>

Shore, T. H., & And, O. (1990). Construct validity of two categories of assessment center

dimension ratings. *Personnel Psychology, 43*(1), 101-16. [http:// 10.1111/j.1744-](http://10.1111/j.1744-6570.1990.tb02008.x)

[6570.1990.tb02008.x](http://10.1111/j.1744-6570.1990.tb02008.x)

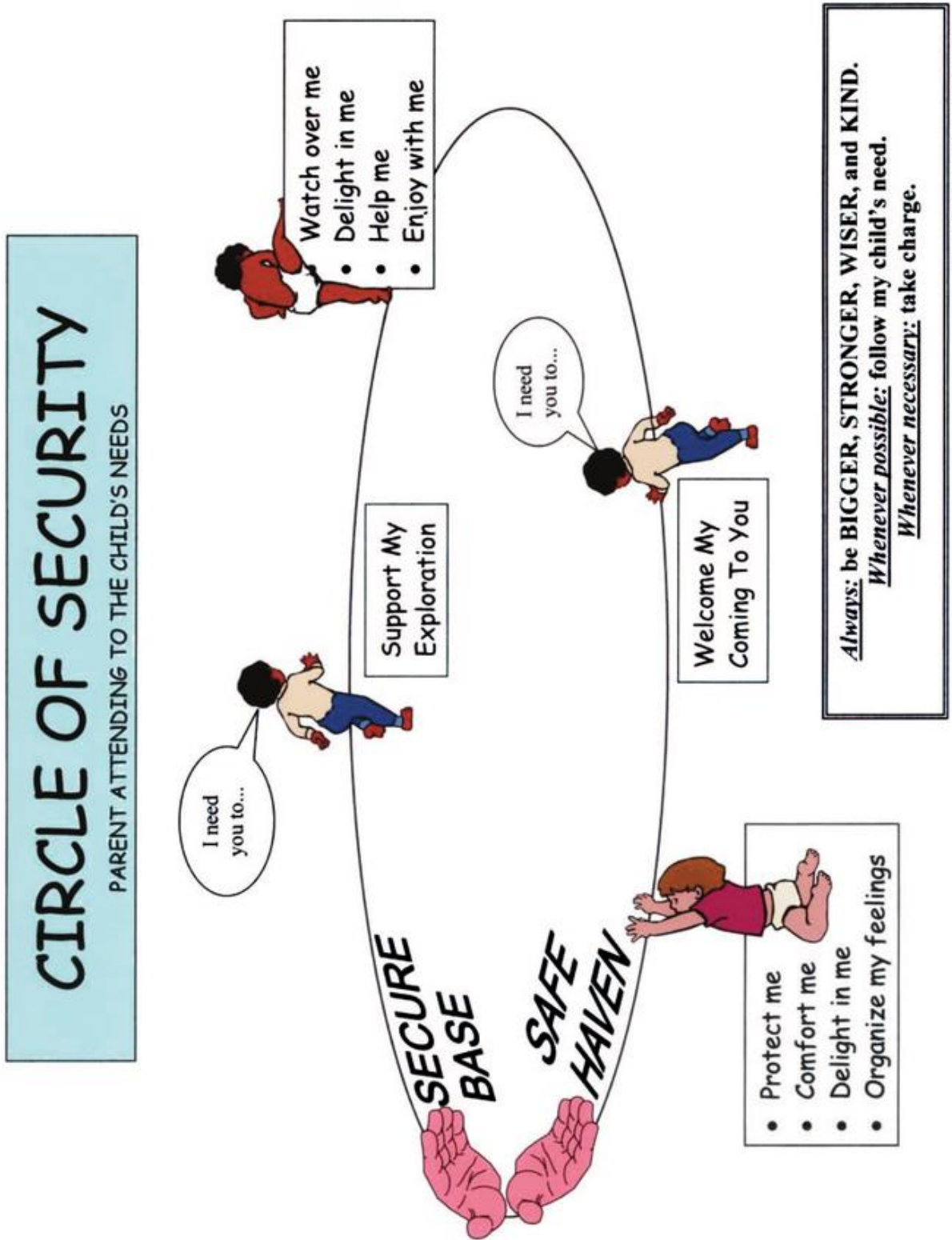
## REFLECTIVE FUNCTIONING

- Skypnek, B. J., & Charchun, J. (2009). *An evaluation of the Nobody's Perfect parenting program: Prepared for the Public Health Agency of Canada*. Ottawa, ON: Canadian Association of Family Resource Programs (FRP Canada).
- Slade, A. (2006). Reflective parenting programs: Theory and development. *Psychoanalytic Inquiry*, 26(4), 640-657. <http://10.1080/07351690701310698>
- Slade, A., Belsky, J., Aber, J. L., & Phelps, J. L. (1999). Mothers' representations of their relationships with their toddlers: Links to adult attachment and observed mothering. *Developmental Psychology*, 35(3), 611-619. <http://10.1037/0012-1649.35.3.611>
- Slade, A., Grienenberger, J., Bernbach, E., Levy, D., & Locker, A. (2005). Maternal reflective functioning, attachment, and the transmission gap: A preliminary study. *Attachment & Human Development*, 7(3), 283-298. <http://10.1080/14616730500245880>
- Smith, P. B., Brown, J., Feldgaier, S., & Lee, C. M. (2015). Supporting parenting to promote children's social and emotional well-being. *Canadian Journal of Community Mental Health*, 34(4), 129-142. <http://10.7870/cjcmh-2015-013>
- Stattin, H., Enebrink, P., Özdemir, M., & Giannotta, F. (2015). A national evaluation of parenting programs in Sweden: The short-term effects using an RCT effectiveness design. *Journal of Consulting and Clinical Psychology*, 83(6), 1069-1084. <http://dx.doi.org/10.1037/a0039328>
- Tricco, A. C., Antony, J., Soobiah, C., Kastner, M., MacDonald, H., Cogo, E., & Straus, S. E. (2016a). Knowledge synthesis methods for integrating qualitative and quantitative data: a scoping review reveals poor operationalization of the

## REFLECTIVE FUNCTIONING

- methodological steps. *Journal of Clinical Epidemiology*, 73, 29-35.  
<http://10.1016/j.jclinepi.2015.12.011>
- Tricco, A. C., Soobiah, C., Antony, J., Cogo, E., MacDonald, H., Lillie, E., & ... Kastner, M. (2016b). A scoping review identifies multiple emerging knowledge synthesis methods, but few studies operationalize the method. *Journal of Clinical Epidemiology*, 73, 19-28. <http://10.1016/j.jclinepi.2015.08.030>
- Whittemore, R., Chao, A., Jang, M., Minges, K. E., & Park, C. (2014). Methods for knowledge synthesis: An overview. *Heart & Lung - The Journal of Acute and Critical Care*, 43, 453-461. <http://10.1016/j.hrtlng.2014.05.014>
- Wimmer, H., & Perner, J. (1983). Beliefs about beliefs: Representation and constraining function of wrong beliefs in young children's understanding of deception. *Cognition*, 13(1), 103-128. [http://10.1016/0010-0277\(83\)90004-5](http://10.1016/0010-0277(83)90004-5)

APPENDIX A: The Circle of Security diagram



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**APPENDIX B: Details of Each Study Utilized in the Systematic Literature Review**

Reference Type of publication Country where research occurred	Population Sample Size	Study Design Intervention	Concepts/ Variables	Time intervals	Reliability	Interclass Correlation Coefficient	Test- Retest
<b>Reflective Functioning (RF) Scale (Fonagy, Steele, Steele, &amp; Target, 1997)</b>							
Antonsen, B. T., Johansen, M. S., Rø, F. G., Kvarstein, E. H., & Wilberg, T. (2015). Is reflective functioning associated with clinical symptoms and long-term course in patients with personality disorders? <i>Comprehensive Psychiatry</i> , 64, 46-58. <a href="http://10.1016/j.comppsy.2015.05.016">http://10.1016/j.comppsy.2015.05.016</a>  Peer Reviewed/Norway	Patients with personality disorders  N=79	Randomized clinical trial	RF; Symptomatic distress; psychosocial functioning; personality functioning; self esteem	Baseline; 8 and 18 months; 3 and 6 years	.83	2.1	No
Bammens, A., Adkins, T., & Badger, J. (2015). Psycho-educational intervention increases reflective functioning in foster and adoptive parents. <i>Adoption &amp; Fostering</i> , 39 (1), 38-50. <a href="http://10.1177/0308575914565069">http://10.1177/0308575914565069</a>	Foster and adoptive parents  N = 31 18 intervention group 13 comparison group	Explorative  Family Minds psychoeducational and interactive program	Dependent Variable - RF Independent variable – group assignment: intervention group or comparison group	Pre-intervention Post-intervention	.89	Unknown	No



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Peer Reviewed/US (research team from UK)							
Bell-Thomson, S. (2014). <i>Effortful control and reflective functioning: Testing a model of affect regulation</i> . (Doctoral dissertation). Retrieved from ProQuest Dissertations & Theses Global. (Order No. 3581880).	Men and Women Undergrad Students  N=62 (Men N=13, Women N=49)	Exploratory  N/A	RF; Attachment; Effortful Control; Personality Assessment; Psychological Mindedness; Emotional Regulation; Mood	Baseline	Unknown	.60 to .83 (Women), .79 to .89 (Men)	No
Doctoral Dissertation/ USA							
Bergeron, C. E. (2010). <i>The use of reflective-functioning manual for application to adult attachment interview as a preliminary prognostic measure</i> . (Doctor dissertation). Retrieved from ProQuest Dissertations & Theses Global. (Order No. 3475701).	Parents with children between the ages 11-19  N=36	Experimental and control group  N/A	RF; Attachment; Parent-Adolescent Stress	Baseline	Unknown	Unknown	Yes
Thesis Dissertation/USA							
Bouchard, M., Target, M., Lecours, S., Fonagy, P., Tremblay, L., Schachter, A., & Stein, H. (2008). <i>Mentalization in adult</i>	Ex-psychiatric patients and nonclinical volunteers	Psychometric study	RF; Attachment; Affect Mentalization	Baseline	.86	Unknown	No

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<p>attachment narratives: Reflective functioning, mental states, and affect elaboration compared. <i>Psychoanalytic Psychology</i>, 25(1), 47-66. <a href="http://10.1037/0736-9735.25.1.47">http://10.1037/0736-9735.25.1.47</a></p> <p>Peer Reviewed /England, US, Canada</p>	N=73	N/A					
<p>Chiesa, M., &amp; Fonagy, P. (2014). Reflective function as a mediator between childhood adversity, personality disorder and symptom distress. <i>Personality and Mental Health</i>, (1), 52-66. <a href="http://10.1002/pmh.1245">http://10.1002/pmh.1245</a></p> <p>Peer Reviewed/ England</p>	<p>Patients with &amp; without Personality Disorder N= 112 (Patients with Personality Disorder) N=122 ( Non-Psychiatric Patients)</p>	<p>Exploratory</p> <p>N/A</p>	<p>RF; Personality Disorder; Patient Functioning; Reading; Attachment</p>	Intake	Unknown	Unknown	No
<p>D'Angelo, K.J. (2006). <i>The role of reflective functioning as a protective factor in survivors of trauma. (Doctoral dissertation)</i>. Retrieved from ProQuest Dissertations &amp; Theses Global. (Order No. 3233769).</p>	<p>Undergrad Student</p> <p>N=59</p>	<p>Exploratory</p> <p>N/A</p>	<p>RF; Childhood Trauma; Experiences in Close Relationships; Symptom Checklist; Demographics</p>	Baseline	Unknown	Unknown	No

REFLECTIVE FUNCTIONING

Doctoral Dissertation/ USA							
Diamond, D., Levy, K. N., Clarkin, J. F., Fischer-Kern, M., Cain, N. M., Doering, S., & Buchheim, A. (2014). Attachment and mentalization in female patients with comorbid narcissistic and borderline personality disorder. <i>Personality Disorders: Theory, Research, and Treatment</i> , 5(4), 428-433. <a href="http://10.1037/per0000065">http://10.1037/per0000065</a>	Outpatients with Borderline Personality Disorder  N=151 ( 60 from New York, 91 from Vienna)	Randomized Control Trial  Transference-Focused Psychotherapy	RF: Personality Disorder; Attachment	Prior to Intervention	Unknown	.79	No
Peer Reviewed/ USA							
Ekeblad, A., Falkenström, F., & Holmqvist, R. (2016). Reflective functioning as predictor of working alliance and outcome in the treatment of depression. <i>Journal of Consulting And Clinical Psychology</i> , 84(1), 67-78. <a href="http://10.1037/ccp0000055">http://10.1037/ccp0000055</a>	Patients with Major Depression Disorder  N=96	Experimental  Cognitive Behavioural Therapy or Interpersonal Psychotherapy	RF; Attachment; Depression; Working Alliance; Neuropsychology	Baseline	Unknown	Unknown	No
Peer Reviewed/ Sweden							
Ensink, K., Normandin, L., Plamondon, A., Berthelot, N., & Fonagy, P. (2016). Intergenerational pathways from reflective	Pregnant Women with History of Childhood Maltreatment	Exploratory	RF: Attachment	3 <sup>rd</sup> Trimester	Unknown	.80	No

REFLECTIVE FUNCTIONING

<p>functioning to infant attachment through parenting. <i>Canadian Journal of Behavioural Science / Revue Canadienne Des Sciences Du Comportement</i>, 48(1), 9-18.  <a href="http://10.1037/cbs0000030">http://10.1037/cbs0000030</a></p>	<p>N= 88                  Mother-Infant Dyad</p>	<p>N/A</p>					
Peer Reviewed/Canada							
<p>Esbjørn, B. H., Pedersen, S. H., Daniel, S. F., Hald, H. H., Holm, J. M., &amp; Steele, H. (2013). Anxiety levels in clinically referred children and their parents: Examining the unique influence of self-reported attachment styles and interview-based reflective functioning in mothers and fathers. <i>British Journal Of Clinical Psychology</i>, 52(4), 394-407.  <a href="http://10.1111/bjc.12024">http://10.1111/bjc.12024</a></p>	<p>Parents with Children with and Anxiety Disorder</p> <p>N= 71 ( 37 Mothers, 34 Fathers</p>	<p>Exploratory</p> <p>N/A</p>	<p>RF; Psychological Symptoms; Anxiety; Experiences in Close Relationships; Emotional Disorders</p>	<p>Baseline</p>	<p>Unknown</p>	<p>.79 (Coders A &amp; B),                  .89 (Coders A &amp; C)</p>	<p>No</p>
Peer Reviewed/Denmark							
<p>Fewell, C. H. (2006). <i>Attachment, reflective function, family dysfunction, and</i></p>	<p>Students whom have a Problem with an Alcohol</p>	<p>Exploratory</p>	<p>RF; Attachment; Family Dysfunction; Psychological</p>	<p>Baseline</p>	<p>Unknown</p>	<p>.77</p>	<p>No</p>

REFLECTIVE FUNCTIONING

<p><i>psychological distress among college students with alcoholic parents.</i> Doctoral dissertation. Retrieved from ProQuest Dissertations &amp; Theses Global. (Order No. 3206748).</p>	<p>Problem(ACOA)</p> <p>N=171 ( 78 ACOA, 93 Non-ACOA)</p>	<p>N/A</p>	<p>Distress</p>				
<p>Doctoral Dissertation/ USA</p>							
<p>Fischer-Kern, M., Fonagy, P., Kapusta, N. D., Luyten, P., Boss, S., Naderer, A., &amp; Leithner, K. (2013). Mentalizing in female inpatients with major depressive disorder. <i>Journal of Nervous &amp; Mental Disease, 201</i>(3), 202-207. <a href="http://10.1097/NMD.0b013e3182845c0a">http://10.1097/NMD.0b013e3182845c0a</a></p>	<p>Inpatients with Major Depressive Disorder</p> <p>N=46</p>	<p>Exploratory</p> <p>N/A</p>	<p>RF; Attachment; Depressive Symptoms</p>	<p>Baseline</p>	<p>Unknown</p>	<p>.79</p>	<p>No</p>
<p>Peer Reviewed/ Austria</p>							
<p>Fonagy, P., Steele, M., Steele, H., Moran, G., &amp; Higgitt, A. (1991). The capacity for understanding mental states: The reflective self in parent and child and its significance for security of attachment. <i>Infant Mental Health Journal, 12</i> (3),</p>	<p>Mother and Fathers</p> <p>N=200</p>	<p>Exploratory</p> <p>N/A</p>	<p>RF; Attachment</p>	<p>Baseline</p>	<p>.70 (Interviewing Mothers), .75 (Interviewing Fathers)</p>	<p>.59-.83</p>	<p>No</p>

REFLECTIVE FUNCTIONING

<p>201-218.  <a href="http://10.1002/1097-0355(199123)12:3&lt;201::AIDIMHJ2280120307&gt;3.0.CO;2-7">http:// 10.1002/1097-0355(199123)12:3&lt;201::AIDIMHJ2280120307&gt;3.0.CO;2-7</a></p> <p>Peer Reviewed/ UK</p>							
<p>Fonagy, P., Leigh, T., Steele, M., Steele, H., Kennedy, R., Mattoon, G., &amp; Gerber, A. (1996). The relation of attachment status, psychiatric classification, and response to psychotherapy. <i>Journal of Consulting and Clinical Psychology, 64</i>(1), 22-31.  <a href="http://10.1037/0022-006X.64.1.22">http://10.1037/0022-006X.64.1.22</a></p> <p>Peer Reviewed/UK</p>	<p>Patients with Personality Disorders</p> <p>N= 82</p>	<p>Exploratory</p> <p>N/A</p>	<p>RF; Attachment; Psychological Symptoms of Distress</p>	<p>14 days of Admission; Discharge; 1 Year After Discharge</p>	<p>.91</p>	<p>Unknown</p>	<p>No</p>
<p>Fonagy, P., Target, M., Steele, H. &amp; Steele, M. (1998). Reflective-functioning manual: For application to adult attachment interviews (Version 5). Retrieved from <a href="http://mentalizacion.com">http://mentalizacion.com</a></p> <p>Manual/ UK</p>	<p>London-Parent Project: Mothers (N=100) &amp; Fathers (N=100)</p> <p>Cassel Hospital Study: Patients with</p>	<p>Exploratory</p> <p>N/A</p> <p>Exploratory</p>	<p>RF; Attachment</p> <p>RF; Attachment; Psychological Symptoms of</p>	<p>Baseline</p> <p>14 days of Admission; Discharge; 1</p>	<p>.70 (Interviewing Mothers), .75 (Interviewing Fathers)</p> <p>.91</p>	<p>.59-.83</p> <p>Unknown</p>	<p>No</p> <p>No</p>

REFLECTIVE FUNCTIONING

	Personality Disorder (N=82)	N/A	Distress	Year After Discharge			
	Prison Health Care Centre Study: Prisoners (N=22)	Exploratory N/A	RF; Attachment	Baseline	Unknown	Unknown	No
Graf, E. P. (2009). <i>The relationship of reflective functioning and severity of agoraphobia in the outcome of a psychoanalytic psychotherapy for panic disorder.</i> (Doctoral dissertation). Retrieved from ProQuest Dissertations & Theses Global. (Order No. 3378569).	Patients Diagnosed with Panic Disorder with or without Agoraphobia  N= 49	Experimental  Panic Focused Psychodynamic and Applied Relaxation Therapy	RF; Attachment	Baseline; Treatment Termination; 2,4,6,12 Months after Treatment	Unknown	.74	No
Doctoral Dissertation/ USA State							
Hartmann, L., Neubert, V., Läger, K., Ackermann, P., Schreiber, M., Fischmann, T., & Leuzinger-Bohleber, M. (2015). Mentalization and the impact of psychoanalytic case supervision. <i>Journal of the</i>	Daycare Teachers  N=64	Experimental  Early Steps (Psychoanalytic Case	RF	Post Intervention	Unknown	Unknown	No

REFLECTIVE FUNCTIONING

<p><i>American Psychoanalytic Association, 63(3), 20-22.</i>  <a href="http://10.1177/0003065115594775">http://10.1177/0003065115594775</a></p> <p>Poster Summary/Germany</p>		<p>Supervision; N=32) or Second Step (Prevention Program; N=32)</p>					
<p>Hörz-Sagstetter, S., Mertens, W., Isphording, S., Buchheim, A. &amp; Taubner, S. (2015). Changes in reflective functioning during psychoanalytic psychotherapies. <i>Journal of the American Psychoanalytic Association, 63(3), 481-509.</i>  <a href="http://10.1177/0003065115591977">http://10.1177/0003065115591977</a></p> <p>Peer Reviewed/Germany</p>	<p>Outpatient Psychoanalytic Psychotherapies          N=20</p>	<p>Experimental          Psychoanalytic Therapy</p>	<p>RF; Attachment; Psychological Problems and Symptoms</p>	<p>Before &amp; After Intervention</p>	<p>Unknown</p>	<p>.88</p>	<p>No</p>
<p>Huber, A., McMahon, C. A. &amp; Sweller, N. (2015a). Efficacy of the 20-week circle of security intervention: Changes in caregiver reflective functioning, representations, and child attachment in an Australian clinical sample. <i>Infant Mental Health Journal, 36 (1), 1-19</i></p>	<p>Parent-child dyads          N=83 dyads</p>	<p>Experimental          Circle of Security</p>	<p>RF; Attachment</p>	<p>Before &amp; After Intervention</p>	<p>.72-.92</p>	<p>.83-.88</p>	<p>No</p>



REFLECTIVE FUNCTIONING

http://10.1002/imhj.21540							
Peer Reviewed/Australia							
Huber, A., McMahon, C., & Sweller, N. (2015b). Improved child behavioural and emotional functioning after Circle of Security 20-week intervention. <i>Attachment and Human Development</i> , 17(6), 547-569. http://10.1080/14616734.2015.1086395	Parent-Child Dyads Referred due to Problems with their Child(ren)'s Behaviour &/or Emotional Well Being  N=83	Experimental  20 Week Circle of Security	Parental RF; Attachment; Child Behaviour & Emotional Functioning	Pre & Post Intervention	Unknown	.83 to .88	No
Peer Reviewed/Australia							
Jacobs, M. L. (2014). <i>Parental reflective functioning and the development of self-regulation: An examination of the relationship between parental reflective functioning and children's capacity to delay gratification. (Doctoral dissertation)</i> . Retrieved from ProQuest Dissertations & Theses Global. (Order No. 3612323).	Mother- Child Dyads  N=24	Experimental  Center for Toddler Development	Parental RF; Attachment; Delay of Gratification	When Child is at the age of 2 & 5 years old	Unknown	.80	No
Doctoral Dissertation/USA							
Jessee, A. C. (2012). <i>The role of reflective functioning in predicting parenting and</i>	Mother and fathers	Exploratory	RF; Attachment; Parenting Quality; Co-	Pre-Birth & 13 months after	Unknown	.74	No

REFLECTIVE FUNCTIONING

<i>coparenting quality. (Doctoral dissertation). Retrieved from ProQuest Dissertations &amp; Theses Global. (Order No. 3600686).</i>	N=65	N/A	parenting Quality				
Doctoral Dissertation/USA							
Karlsson, R., & Kermott, A. (2006). Reflective-functioning during the process in brief psychotherapies. <i>Psychotherapy: Theory, Research, Practice, Training</i> , 43(1), 65-84. <a href="http://10.1037/0033-3204.43.1.65">http://10.1037/0033-3204.43.1.65</a>	Study 1: Individuals with Major Depression Disorder; N=155	Experimental  Cognitive Behavioural Therapy or Interpersonal Psychotherapy or Imipramine Clinical Management or Placebo Clinical Management	RF; Depression	Session 4 & 12	Unknown	.89	No
Peer Reviewed/USA, Sweden							
	Study 2: Patients with a variety of Neurotic Diagnoses	Experimental  Brief Psychodynamic Psychotherapy Treatment	RF	Session 1, 5 & 14	Unknown	.84	No
Katzow, A. (2011). <i>Keeping a mind in mind: The role of reflective functioning in the process and outcome of Brief Relational Therapy.</i> (Doctoral	Individuals with Personality Disorder  N=21	Experimental  Brief Relational	RF; Attachment	Baseline	Unknown	.91	No

REFLECTIVE FUNCTIONING

dissertation). Retrieved from <i>Dissertation Abstracts International</i> . (Order No. 3444207).		Therapy					
Doctoral Dissertation/USA							
Kullgard, N., Persson, P., Möller, C., Falkenström, F., & Holmqvist, R. (2013). Reflective functioning in patients with obsessive–compulsive disorder (OCD) – preliminary findings of a comparison between reflective functioning (RF) in general and OCD-specific reflective functioning. <i>Psychoanalytic Psychotherapy</i> , 27(2), 154-169. 10.1080/02668734.2013.795909	Patients with Obsessive Compulsive Disorder  N=30	Exploratory  N/A	RF; Attachment; Obsessive Compulsive Disorder	Baseline	Unknown	.79	No
Peer Reviewed/Sweden							
Levy, K. N., Meehan, K. B., Kelly, K. M., Reynoso, J. S., Weber, M., Clarkin, J. F., & Kernberg, O. F. (2006). Change in attachment patterns and reflective function in a	Patients with Borderline Personality Disorder	Experimental	RF: Attachment	Time 1 & Time 2	Unknown	.86	No

REFLECTIVE FUNCTIONING

<p>randomized control trial of transference-focused psychotherapy for borderline personality disorder. <i>Journal of Consulting and Clinical Psychology</i>, 74(6), 1027-1040. <a href="http://10.1037/0022-006X.74.6.1027">http://10.1037/0022-006X.74.6.1027</a></p> <p>Peer Reviewed/USA</p>	<p>N=90</p>	<p>Transference Focused Psychotherapy or Dialectic Behavioural Therapy or Supportive Psychotherapy</p>					
<p>Lowyck, B., Vermote, R., Luyten, P., Franssen, M., Verhaest, Y., Vertommen, H., &amp; Peuskens, J. (2009). Comparison of reflective functioning as measured on the adult attachment interview and the object relations inventory in patients with a personality disorder: A preliminary study. <i>Journal of the American Psychoanalytic Association</i>, 57(6), 1469-1472. <a href="http://10.1177/00030651090570060803">http://10.1177/00030651090570060803</a></p> <p>Poster Summary/Belgium</p>	<p>Patients with borderline Personality Disorder</p> <p>N=82</p>	<p>Exploratory</p>	<p>RF; Attachment &amp; Object Relations</p>	<p>Baseline</p>	<p>Unknown</p>	<p>Unknown</p>	<p>No</p>
<p>MacBeth, A., Gumley, A., Schwannauer, M., &amp; Fisher, R. (2011).</p>	<p>Individuals obtaining Psychosis</p>	<p>Cross Sectional Cohort Design</p>	<p>RF; Attachment: Pre-Morbid Adjustment;</p>	<p>5 times over a year span</p>	<p>Unknown</p>	<p>Unknown</p>	<p>No</p>

REFLECTIVE FUNCTIONING

<p>Attachment states of mind, mentalization, and their correlates in a first-episode psychosis sample.  <i>Psychology &amp; Psychotherapy: Theory, Research &amp; Practice</i>, 84(1), 42-57.  <a href="http://10.1348/147608310X530246">http://10.1348/147608310X530246</a></p> <p>Peer Reviewed/Scotland</p>	<p>Early Intervention  N=34</p>	<p>12 Month Treatment for First Episode Psychosis</p>	<p>Service Engagement; Quality of Life</p>				
<p>Mathiesen, B. B., Pedersen, S. H., Sandros, C., Katznelson, H., Wilczek, A., Poulsen, S. &amp; Lunn, S. (2015). Psychodynamic profile and reflective functioning in patients with bulimia nervosa.  <i>Comprehensive Psychiatry</i>, 62, 20-26.  <a href="http://10.1016/j.comppsy.2015.06.005">http://10.1016/j.comppsy.2015.06.005</a></p> <p>Peer Reviewed/Denmark</p>	<p>Patients with Bulimia Nervosa  N= 70</p>	<p>Exploratory  N/A</p>	<p>RF; Attachment: Psychodynamic Profiles; Eating Disorders</p>	<p>Baseline</p>	<p>Unknown</p>	<p>.88</p>	<p>No</p>

REFLECTIVE FUNCTIONING

<p>Mays, L. A. (2014). <i>Reflective functioning and caregiving quality: An exploratory study</i>. (Doctoral dissertation). Retrieved from ProQuest Dissertations &amp; Theses Global. (Order No. 3733468)</p> <p>Doctoral Dissertation/ USA</p>	<p>Mother-Child Dyads (N=13) &amp; Father-Child Dyads (N=13)</p> <p>N=26</p>	<p>Exploratory</p> <p>N/A</p>	<p>RF; Attachment; Parental Caregiving Behaviour Quality</p>	<p>Baseline</p>	<p>Unknown</p>	<p>Unknown</p>	<p>No</p>
<p>Nimroody, T. (2008). <i>The impact of mother's level of reflective functioning on child's play narratives, memory, and frustration tolerance</i>. (Doctoral dissertation). Retrieved from ProQuest Dissertations &amp; Theses Global. (Order No. 3311532).</p> <p>Doctoral Dissertation/USA</p>	<p>Mother-Child Dyads</p> <p>N=31</p>	<p>Exploratory</p> <p>N/A</p>	<p>RF; Attachment; Psychological Symptoms; Childhood Trauma; Childhood Deprivation; Emotional Regulation</p>	<p>Baseline</p>	<p>Unknown</p>	<p>.88</p>	<p>No</p>
<p>Pedersen, S. H., Lunn, S., Katznelson, H., &amp; Poulsen, S. (2012). Reflective functioning in 70 patients suffering from bulimia nervosa. <i>European Eating Disorders Review</i>, 20(4), 303-310.</p>	<p>Outpatients</p> <p>N= 69</p>	<p>Random Controlled Trial</p> <p>Psychoanalytical Psychotherapy or Cognitive Behavioural Therapy</p>	<p>RF; Attachment; Personality Disorder; Eating Disorder</p>	<p>Prior Intervention</p>	<p>Unknown</p>	<p>.90 (Patient Group), .85 (Control Group)</p>	<p>No</p>

REFLECTIVE FUNCTIONING

http://10.1002/erv.2158							
Peer Reviewed/Denmark							
Pedersen, S. H., Poulsen, S., & Lunn, S. (2015). Eating disorders and mentalization. <i>Journal of the American Psychoanalytic Association</i> , 63(4), 671-694. http://10.1177/0003065110003065	Patients with Eating Disorder  N=70	Exploratory  N/A	RF; Attachment; Eating Disorder	Baseline	Unknown	.76	No
Peer Reviewed/Denmark							
Ranawat, D. N. (2008). <i>Mentalization in psychotherapy supervision: Assessing the transmission of reflective functioning</i> . (Doctoral dissertation). Retrieved from ProQuest Dissertations & Theses Global. (Order No. 3293117)	Supervisors & Trainees  N=71	Exploratory  N/A	RF; Supervisory Work Alliance; Supervisory Adherence; Anxiety	Time 1 & Time 2	Unknown	.98	No
Doctoral Dissertation/ USA							

REFLECTIVE FUNCTIONING

<p>Reading, R. A. (2013). <i>Investigating the role of therapist reflective functioning in psychotherapy process and outcome.</i> (Master's thesis). Retrieved from ProQuest Dissertations &amp; Theses Global. (Order No. 3566470).</p> <p>Master's Thesis/USA</p>	<p>Patients (with Personality Disorders)-Therapist Dyads</p> <p>N=43</p>	<p>Experimental</p> <p>Brief Psychotherapy</p>	<p>RF: Psychotherapy Process &amp; Outcome; Working Alliance; Interpersonal Problems</p>	<p>After Session 10 &amp; Before Session 15</p>	<p>Unknown</p>	<p>.86</p>	<p>No</p>
<p>Rizzo, J. (2007). <i>Exploring the effects of the severity and constructive /destructive qualities of superego anxiety on mentalization in analytic and psychotherapy narrative.</i> (Doctoral dissertation). Retrieved from ProQuest Dissertations &amp; Theses Global. (Order No. 3221643).</p> <p>Doctoral Dissertation/Hong Kong</p>	<p>Patients with Anxiety</p> <p>N=20</p>	<p>Experimental</p> <p>Psychoanalytic Psychotherapy</p>	<p>RF; Anxiety; Criticism</p>	<p>2 Sessions at the beginning of treatment &amp; 2 Sessions late in Treatment</p>	<p>Unknown</p>	<p>.64</p>	<p>No</p>
<p>Rosen, J. B. (2013). <i>Parental reaction to a diagnosis of autism: How resolution relates to parental reflective functioning and</i></p>	<p>Parents with Children with Autism</p>	<p>Exploratory</p>	<p>RF; Attachment; Parent's Reaction to Diagnosis; Parenting Stress;</p>	<p>Baseline</p>	<p>Unknown</p>	<p>.54 to .84</p>	<p>No</p>



REFLECTIVE FUNCTIONING

<p><i>parenting stress</i>. (Doctoral dissertation). Retrieved from ProQuest Dissertations &amp; Theses Global. (Order No. 3570196).</p> <p>Doctoral Dissertation/USA</p>	N= 21		Social Communication				
<p>Rosso, A. M., Viterbori, P., &amp; Scopesi, A. M. (2015). Are maternal reflective functioning and attachment security associated with preadolescent mentalization?. <i>Frontiers in Psychology, 6</i>, 1-12. <a href="http://10.3389/fpsyg.2015.01134">http://10.3389/fpsyg.2015.01134</a></p> <p>Peer Reviewed/Italy</p>	<p>Mother-Child Dyads</p> <p>N=41</p>	Exploratory	RF; Attachment; Children Mentalization; Children Verbal Intelligence	Baseline	Unknown	.87	No
<p>Schechter, D. S., Coots, T., Zeanah, C. H., Davies, M., Coates, S. W., Trabka, K. A., &amp; Myers, M. M. (2005). Maternal mental representations of the child in an inner-city clinical sample: Violence-related posttraumatic stress and reflective functioning. <i>Attachment &amp; Human Development,</i></p>	<p>Mothers with Children ages 8-50 months</p> <p>N=41</p>	<p>Exploratory</p> <p>N/A</p>	Maternal RF; Trauma; Maternal Post Traumatic Stress Disorder; Maternal Perception	Baseline	Unknown	Unknown	No

REFLECTIVE FUNCTIONING

7(3), 313-331. <a href="http://10.1080/14616730500246011">http://10.1080/14616730500246011</a>							
Peer Reviewed/USA							
Taubner, S., Kessler, H., Buchheim, A., Kächele, H., & Staun, L. (2011). The role of mentalization in the psychoanalytic treatment of chronic depression. <i>Psychiatry: Interpersonal &amp; Biological Processes</i> , 74(1), 49-57. <a href="http://10.1521/psyc.2011.74.1.49">http://10.1521/psyc.2011.74.1.49</a>	Patients with Depression  N= 40 ( 20 patients with depression; 20 control group	Experimental  Psychoanalytic Treatment	RF; Attachment	Baseline	Unknown	.86	No
Peer Reviewed/Germany							
Taubner, S., Hörz, S., Fischer-Kern, M., Doering, S., Buchheim, A., & Zimmermann, J. (2013). Internal structure of the reflective functioning scale. <i>Psychological Assessment</i> , 25(1), 127-135. <a href="http://10.1037/a0029138">http://10.1037/a0029138</a>	Individuals for various studies  N=196 ( 92 Personality Disorder; 40 Adolescent Violent Offenders; 20 Psychoanalytical Therapy; 35	Exploratory  N/A	RF: Attachment	Baseline	Unknown	.71	No
Peer Reviewed/Germany							

REFLECTIVE FUNCTIONING

	Depression; 9 Health Professional Development						
Twomey, A. (2012). <i>Parenting stress and theory of mind development in children with autism spectrum disorder: The influence of parental reflective functioning on this relationship. (Doctoral dissertation)</i> . Retrieved from ProQuest Dissertations & Theses Global. (Order No. 3528079).	Parent- Child (ages 4 to 12 and with Autism) Dyads  N=21	Exploratory  N/A	RF; Theory of Mind; Parental Stress; Attachment	Baseline	Unknown	.96	No
Doctoral Dissertation/USA							
<b>Parent Development Interview ( Aber, Slade, Berger, Bresgi &amp; Kaplan, 1985)</b>							
Bain, K. (2014). "New beginnings" in south african shelters for the homeless: Piloting of a group psychotherapy intervention for high-risk mother-infant dyads. <i>Infant Mental Health Journal</i> , 35(6), 591-603. <a href="http://10.1002/imhj.21457">http://10.1002/imhj.21457</a>	Mothers-Child Dyads  N=22	Experimental  New Beginnings Group Program	RF; Depression & Anxiety; Maternal Sensitivity & Infant's Level of Responsiveness; Infant Development	Prior to Intervention	Unknown	Unknown	No
Peer Reviewed/ South Africa							

REFLECTIVE FUNCTIONING

<p>Capstick, C. C. (2008). <i>The role of higher-order cognition in parental reflective functioning: A correlational study of executive and reflective capacities and the related contributions of substance abuse and depression</i> (Doctoral dissertation). Retrieved from ProQuest Dissertations &amp; Theses Global. (Order No. 3296958).</p> <p>Doctoral Dissertation/USA</p>	<p>Mothers with a Child between the ages of 9 &amp; 15</p> <p>N=29</p>	<p>Exploratory</p> <p>N/A</p>	<p>RF; Substance Use; Depression; Executive Functioning</p>	<p>3<sup>rd</sup> Visit</p>	<p>Unknown</p>	<p>Unknown</p>	<p>No</p>
<p>Dollberg, D., Feldman, R., &amp; Keren, M. (2010). Maternal representations, infant psychiatric status, and mother-child relationship in clinic-referred and non-referred infants. <i>European Child &amp; Adolescent Psychiatry</i>, 19(1), 25-36. <a href="http://10.1007/s00787-009-0036-5">http://10.1007/s00787-009-0036-5</a></p> <p>Peer Reviewed/Israel</p>	<p>Mothers with Young Children</p> <p>N=79</p>	<p>Exploratory</p> <p>N/A</p>	<p>RF; Mental Health Disorders; Maternal Behaviour; Maternal-Child Interactive Behaviour</p>	<p>Pre- Parent-Child Observation</p>	<p>Unknown</p>	<p>.74 to .86</p>	<p>No</p>
<p>Grienenberger, J. F. (2003). <i>The impact of maternal</i></p>	<p>First Time Mothers</p>	<p>Exploratory</p>	<p>RF; Attachment; Affective</p>	<p>Prior to Strange</p>	<p>Unknown</p>	<p>.88</p>	<p>No</p>

REFLECTIVE FUNCTIONING

<p><i>reflective functioning on mother-infant affective communication: Exploring the link between mental states and observed caregiving behavior.</i> (Doctoral dissertation). Retrieved from Dissertation Abstracts International. (Order No. 3063835)</p>	N=44	N/A	Communication	Situation Procedure (Child is 10 months of age)			
<p>Doctoral Dissertation/USA</p>							
<p>Grienenberger, J., Kelly, K., &amp; Slade, A. (2005). Maternal reflective functioning, mother–infant affective communication, and infant attachment: Exploring the link between mental states and observed caregiving behavior in the intergenerational transmission of attachment. <i>Attachment &amp; Human Development</i>, 7(3), 299-311. <a href="http://10.1080/14616730500245963">http://10.1080/14616730500245963</a></p>	<p>Pregnant Mothers</p> <p>N=45</p>	Data Analysis	RF; Attachment; Maternal Behaviour	When child was 10 months of age.	Unknown	Unknown	No
<p>Peer Reviewed/USA</p>							
<p>Huth-Bocks, A., Earls, L., Muzik, M., Beeghly, M.,</p>	<p>Pregnant Mothers with</p>	Exploratory	RF; Attachment; Parenting	When Child was at the age	Unknown	.76	No

REFLECTIVE FUNCTIONING

<p>&amp; Stacks, A. (2014). Secure base scripts are associated with maternal parenting behavior across contexts and reflective functioning among trauma-exposed mothers. <i>Attachment and Human Development</i>, 16(6), 535-556. <a href="http://10.1080/14616734.2014.967787">http://10.1080/14616734.2014.967787</a></p> <p>Peer Reviewed/USA</p>	<p>Childhood Maltreatment Experiences</p> <p>N=115</p>		<p>Behaviour</p>	<p>of 16 months</p>			
<p>Jacobs, M. L. (2014). <i>Parental reflective functioning and the development of self-regulation: An examination of the relationship between parental reflective functioning and children's capacity to delay gratification.</i> (Doctoral dissertation). Retrieved from ProQuest Dissertations &amp; Theses Global. (Order No. 3612323).</p> <p>Doctoral Dissertation/USA</p>	<p>Mother- Child Dyads</p> <p>N=24</p>	<p>Experimental</p> <p>Center for Toddler Development</p>	<p>Parental RF; Attachment; Delay of Gratification</p>	<p>When Child is at the age of 2 &amp; 5 years old</p>	<p>Unknown</p>	<p>.80</p>	<p>No</p>
<p>Ordway, M. R., Sadler, L. S., Dixon, J., Close, N., Mayes, L. &amp; Slade, A. (2014). Lasting effects of an interdisciplinary home</p>	<p>Mother-Child Dyads</p>	<p>Experimental</p>	<p>Parental RF; Emotional Experience During Pregnancy;</p>	<p>Twice during the Study; Follow Up</p>	<p>Unknown</p>	<p>.80</p>	<p>No</p>

REFLECTIVE FUNCTIONING

<p>visiting program on child behavior: Preliminary follow-up results of a randomized trial. <i>Journal of Pediatric Nursing</i>, 29, 3-13.  <a href="http://10.1016/j.pedn.2013.04.006">http://10.1016/j.pedn.2013.04.006</a></p>	N=132	Minding The Baby	Depression; Internalizing & Externalizing Behaviours				
Peer Reviewed/USA							
<p>Pajulo, M., Pyykkönen, N., Kalland, M., Sinkkonen, J., Helenius, H., Punamäki, R., &amp; Suchman, N. (2012). Substance-abusing mothers in residential treatment with their babies: Importance of pre- and postnatal maternal reflective functioning. <i>Infant Mental Health Journal</i>, 33(1), 70-81.  <a href="http://10.1002/imhj.20342">http://10.1002/imhj.20342</a></p>	<p>Pregnant or Recent Mothers (within 2 weeks) within the Federation of Mother &amp; Child Homes &amp; Shelters Residential Unit</p> <p>N=34</p>	<p>Exploratory</p> <p>Residential Parenting Program</p>	<p>Maternal RF; Child Development; Substance Use; Somatic Symptoms of the Child; Pregnancy History &amp; Delivery</p>	Baseline	Unknown	Unknown	No
Peer Reviewed/Finland							
<p>Perry, N., Newman, L. K., Hunter, M., &amp; Dunlop, A. (2015). Improving antenatal risk assessment in women exposed to high risks. <i>Clinical Child Psychology &amp; Psychiatry</i>,</p>	<p>Pregnant Mothers; 11 Mothers with Heroine Dependence; 15 Mothers with no</p>	Exploratory	<p>Parental RF; Medical &amp; Psychological History; Childhood Trauma; Emotional</p>	3 to 6 months	Unknown	.81	No

REFLECTIVE FUNCTIONING

<p>20(1), 84-105.  <a href="http://10.1177/1359104513499355">http://10.1177/1359104513499355</a></p> <p>Peer Reviewed/Australia</p>	<p>Substance Use</p> <p>N=26</p>	<p>N/A</p>	<p>Experiences of Pregnancy; BPD; Emotional Availability; Child Protection Involvement</p>				
<p>Poznansky, O. (2010). <i>Stability and change in maternal reflective functioning in early childhood</i> (Doctoral dissertation). Retrieved from ProQuest Dissertations &amp; Theses Global. (Order No. 3426810).</p> <p>Doctoral Dissertation/USA</p>	<p>First Time Mothers</p> <p>N=66</p>	<p>Longitudinal Exploratory</p> <p>N/A</p>	<p>Maternal RF; Attachment</p>	<p>10 Month Visit</p>	<p>Unknown</p>	<p>.80</p>	<p>No</p>
<p>Sadler, L. S., Slade, A., Close, N., Webb, D. L., Simpson, T., Fennie, K., &amp; Mayes, L. C. (2013). Minding the baby: Enhancing reflectiveness to improve early health and relationship outcomes in an interdisciplinary home-visiting program. <i>Infant Mental Health Journal</i>, 34(5), 391-405.  <a href="http://10.1002/imhj.21406">http://10.1002/imhj.21406</a></p> <p>Peer Reviewed/USA</p>	<p>Prenatal Care Groups</p> <p>N=105; 60 Intervention Group; 45 Comparison</p>	<p>Two- Group Experimental Design</p> <p>Minding the Baby; Care at Community Health Center</p>	<p>Parental RF; Maternal-Child Health Outcomes; Maternal Mental Health; Infant Attachment; Mother-Infant Interactions</p>	<p>When Child was at the age of 24 months</p>	<p>Unknown</p>	<p>.80</p>	<p>No</p>



REFLECTIVE FUNCTIONING

<p>Sayre, J. M. (1999). <i>A validity study of the parent development interview coding system: Relations between mothers' mental models of parenting and behavior.</i> (Doctoral dissertation). Retrieved from <i>Dissertation Abstracts International.</i> (Order No. 9916367).</p>	<p>Mothers with Children with Cerebral Palsy</p> <p>N=118</p>	<p>Exploratory</p> <p>N/A</p>	<p>Parental RF; Maternal Behaviour; Child Behaviour</p>	<p>Following SSP</p>	<p>Unknown</p>	<p>.84</p>	<p>No</p>
<p>Doctoral Dissertation/USA</p>							
<p>Slade, A., Belsky, J., Aber, J. L., &amp; Phelps, J. L. (1999). Mothers' representations of their relationships with their toddlers: Links to adult attachment and observed mothering. <i>Developmental Psychology, 35</i>(3), 611-619. <a href="http://10.1037/0012-1649.35.3.611">http://10.1037/0012-1649.35.3.611</a></p>	<p>Families with First Born Male Toddler</p> <p>N=125</p>	<p>Exploratory</p> <p>N/A</p>	<p>Parental RF; Attachment</p>	<p>When Child was 12 &amp; 15 Months</p>	<p>Unknown</p>	<p>.87</p>	<p>No</p>
<p>Peer Reviewed/USA</p>							
<p>Slade, A., Grienberger, J., Bernbach, E., Levy, D., &amp; Locker, A. (2005). Maternal reflective functioning, attachment, and the transmission gap: A preliminary study.</p>	<p>1<sup>st</sup> Time Mother-Child Dyads</p>	<p>Exploratory</p>	<p>Parental RF; Attachment</p>	<p>When Child was 10 months of age</p>	<p>Unknown</p>	<p>.88</p>	<p>No</p>

REFLECTIVE FUNCTIONING

<p><i>Attachment &amp; Human Development</i>, 7(3), 283-298.  <a href="http://10.1080/14616730500245880">http://10.1080/14616730500245880</a></p> <p>Peer Reviewed/USA</p>	N=78	N/A					
<p>Sleed, M., Baradon, T., &amp; Fonagy, P. (2013). New beginnings for mothers and babies in prison: A cluster randomized controlled trial.  <i>Attachment &amp; Human Development</i>, 15(4), 349-367.  <a href="http://10.1080/14616734.2013.782651">http://10.1080/14616734.2013.782651</a></p> <p>Peer Reviewed/UK</p>	<p>Mothers in Mother &amp; Baby Units with Prisons</p> <p>N=163 Dyads (88 Dyads in Prison Intervention &amp; 75 Dyads in Control Prisons)</p>	<p>Experimental</p> <p>New Beginnings</p>	<p>Parental RF; Depression; Mother-Infant Interactions; Mother Object Relations</p>	<p>Baseline; Post-Treatment</p>	<p>Unknown</p>	.83	No
<p>Stacks, A. M., Muzik, M., Wong, K., Beeghly, M., Huth-Bocks, A., Irwin, J. L. &amp; Rosenblum, K. L. (2014). Maternal reflective functioning among mothers with childhood maltreatment histories: Links to sensitive parenting and infant attachment security.  <i>Attachment &amp; Human Development</i>, 16(5), 515-</p>	<p>Mothers with either Prenatal Post Traumatic Stress Disorder &amp;/or Difficult Childhood Experiences</p> <p>N=83</p>	<p>Exploratory</p> <p>N/A</p>	<p>Parental RF; Infant Attachment; Demographics; Parenting</p>	<p>When Child was at the age of 16 months</p>	<p>Unknown</p>	.76	No

REFLECTIVE FUNCTIONING

533. <a href="http://10.1080/14616734.2014.935452">http://10.1080/14616734.2014.935452</a>							
Peer Reviewed/UK							
Stover, C. S., & Kiselica, A. (2014). An initial examination of the association of reflective functioning to parenting of father. <i>Infant Mental Health Journal, 35</i> (5), 452-461. <a href="http://10.1002/imhj.21459">http://10.1002/imhj.21459</a>	Fathers with & without intimate partner violence & Substance Use  N=79	Exploratory  N/A	Parental RF; Childhood Trauma; Experiences in Close Relationships; Violence; Hostile-Aggressive Parenting; Parent-Child Relationship; Addiction; Psychiatric Symptoms	Baseline	Unknown	.75	No
Peer Reviewed/USA							
Stover, C., & Coates, E. (2015). The relationship of reflective functioning to parent child interactions in a sample of fathers with concurrent intimate partner violence perpetration and substance abuse problems. <i>Journal of Family Violence, 1-10</i> . <a href="http://10.1007/s10896-015-9775-x">http://10.1007/s10896-015-9775-x</a>	Father with Concurrent Intimate Partner Violence and Substance Abuse  N=24	Exploratory  N/A	Parental RF: Conflict Tactics; Frequency of Hostile Aggression; Substance Use; Child Interactive Behaviour	Baseline	Unknown	.75	No

REFLECTIVE FUNCTIONING

Peer Reviewed/USA							
Suchman, N. E., DeCoste, C., Leigh, D. & Borelli, J. (2010). Reflective functioning in mothers with drug use disorders: Implications for dyadic interactions with infants and toddlers. <i>Attachment &amp; Human Development</i> , 12(6), 567-585. <a href="http://10.1080/14616734.2010.501988">http://10.1080/14616734.2010.501988</a>	Mothers in Substance Abuse Treatment  N=56	Two-Factor Solution Analysis  The Mothers & Toddlers Program	Parental RF; Psychosocial Evaluation; Mother Caregiving Behaviour; Child Behaviour; Maternal Psychiatric Symptoms	Baseline	Unknown	.50	No
Peer Reviewed/USA							
<b>Reflective Functioning Questionnaire (Fonagy &amp; Ghinai, 2008)</b>							
Carlisle, J. R. (2014). <i>Using mentalizing and psychopathy to explore a dimensional model of antisocial and borderline personality disorder</i> . Retrieved from <a href="http://discovery.ucl.ac.uk">http://discovery.ucl.ac.uk</a> Doctoral Thesis/England	Individuals with Borderline Personality disorder (N=60), and Antisocial Personality Disorder (N=21) and Control Group (N=81)  N=162	Exploratory  N/A	RF; IQ; Personality Disorders; Psychopathy; Antisocial Behaviour	Baseline	Unknown	Unknown	No
Moulton-Perkins, A., Rogoff, S., Luyten P., & Fonagy, P. (2011). <i>Development</i>	Individuals with Borderline	Cross Sectional Questionnaire	RF; Theory of Mind, Mindfulness,	Baseline	Unknown	Unknown	No

REFLECTIVE FUNCTIONING

<p><i>and validation of a new self-report measure of mentalisation: The 54-item reflective function questionnaire</i> [Abstract]. Research Conference of the British Association for Counselling &amp; Psychotherapy, Liverpool. Abstract/UK</p>	<p>Personality Disorders &amp;/or Eating Disorders; Non-Clinical Controls  Target N=600</p>	<p>N/A</p>	<p>Aleithymia; Empathy</p>				
<p>Vospornik, P. (2015). <i>The relationship of adaptive and pathological narcissism to attachment style and reflective functioning</i>. (Doctoral dissertation). Retrieved from ProQuest Dissertations &amp; Theses Global. (Order No. 3641917).  <i>Doctoral Dissertation/USA</i></p>	<p>University Students  N= 345</p>	<p>Factor Analysis  N/A</p>	<p>RF; Pathological, Vulnerable &amp; Adaptive Narcissism; Experiences of Close Relationships; Psychological Symptoms; Personality Disorder</p>	<p>Baseline</p>	<p>.86 (RFQTOTAL), .63 (RFQSELF), .75 (SELFOTHER)</p>	<p>Unknown</p>	<p>No</p>
<p><b>Parental Reflective Functioning Questionnaire (Luyten, Mayes, Nijssens &amp; Fonagy, 2015)</b></p>							
<p>Bottos, S., &amp; Nilsen, E. (2014). The cross-generational effects of maternal maltreatment histories: Implications for children's mentalizing development. <i>Child Abuse and Neglect</i>, 38(6), 1094-1105.</p>	<p>Biological Mother-Child Dyads (3-6 years old)  N= 106</p>	<p>Exploratory  Children- 3 research administered</p>	<p>Maternal RF and Mentalizing, Depressive Symptoms, Maternal Experiences of Childhood Maltreatment, Children's</p>	<p>Baseline</p>	<p>Unknown</p>	<p>Unknown</p>	<p>No</p>

REFLECTIVE FUNCTIONING

<p><a href="http://10.1016/j.chiabu.2014.02.012">http://10.1016/j.chiabu.2014.02.012</a></p> <p>Peer Reviewed/Canada</p>		tasks, Mothers-Series of Inventories	Theory of Mind, Emotional Understanding and Receptive Vocabulary				
<p>Cooke, D., Luyten, P., Priddis, L., Kendall, G., &amp; Cavanagh, R. (n.d.) <i>Paternal reflective functioning: Comparisons of mothers' and fathers' self-reported parental reflective functioning and associations with family functioning</i> [Poster]. Retrieved from <a href="https://www.academia.edu">https://www.academia.edu</a></p> <p>Poster/Australia</p>	<p>Mothers and Fathers with one year old children</p> <p>N=120</p>	<p>Data Analysis</p> <p>N/A</p>	<p>RF (Interest &amp; Curiosity in Mental States (IC); Certainty of Mental States (CM); Pre-Mentalizing Modes (PM)</p>	<p>Baseline</p>	<p>.72, .76, .71 for IC, CM &amp; PM</p>	<p>Unknown</p>	<p>No</p>
<p>Cooke, D., Priddis, L., Cavanagh, R., &amp; Kendall, G. (n.d.). <i>Paternal reflective functioning: A preliminary look at the PRFQ with mothers and fathers using analysis with the rasch model</i> [Poster]. Retrieved from <a href="https://www.academia.edu">https://www.academia.edu</a></p> <p>Poster/Australia</p>	<p>Parents with a 12 month old child</p> <p>N=92</p>	<p>Data Analysis</p> <p>N/A</p>	<p>Positive Mentalizing (Curiosity &amp; Opacity-Development); Non-Mentalizing; Pseudo - Mentalizing</p>	<p>Baseline</p>	<p>.83, .68, .58, .67 for Curiosity, Opacity-Development, Non-Mentalizing &amp; Pseudo - Mentalizing</p>	<p>Unknown</p>	<p>No</p>
<p>Goldberg, B. (2011). <i>Parental reflective functioning,</i></p>	<p>Mothers</p>	<p>Exploratory</p>	<p>Parental Reflective</p>	<p>Baseline</p>	<p>Unknown</p>	<p>Unknown</p>	<p>No</p>

REFLECTIVE FUNCTIONING

<p><i>emotion regulation, and stress tolerance: A preliminary investigation.</i> (Master's thesis). Retrieved from ProQuest Dissertations &amp; Theses Global. (Order No. 3480933).</p>	N=26	N/A	Functioning; Psychological Stress' Executive Functioning & Emotional Regulation				
<p>Master's Thesis/USA</p>							
<p>Gray, S. O. (2015). Widening the circle of security: a quasi-experimental evaluation of attachment-based professional development for family child care providers. <i>Infant Mental Health Journal</i>, 36(3), 308-319. <a href="http://10.1002/imhj.21513">http://10.1002/imhj.21513</a></p>	<p>Childcare Providers</p> <p>N=34</p>	<p>Quasi Experimental Pilot Study</p> <p>Circle of Security Parenting Program</p>	RF; Stress & Depressive Symptoms; Self-Efficacy & Competence	Prior to Group Sessions & Follow Up 3 months later.	Unknown	Unknown	No
<p>Peer Reviewed/USA</p>							
<p>Luyten, P., Mayes, L.C., Sadler, L., Fonagy, P., Nicholls, S., Crowley, M., Vesper, A., Mobley, A., Stewart, T., Close, N., &amp; Slade A. (2009). <i>The parental reflective functioning questionnaire-1 (PRFQ-1)</i>. Leuven: University of Leuven.</p>	<p>Experts</p> <p>N=20</p>	<p>Prototype Approach</p> <p>N/A</p>	Maternal High & Low RF	One group (n=10) rated all items for with a high-mentalizing mother in mind, and the other group (n = 10) rated all items with a low-	Unknown	Unknown	No

REFLECTIVE FUNCTIONING

Manuscript/USA				mentalizing mother in mind			
Luyten,P., Mayes,L., NijssenL & Fonagy, P. (N.D). <i>The parental reflective functioning questionnaire: Development and preliminary validation.</i> Manuscript submitted for publication.	3 Studies: 1)Biological Mothers with children ages 0-3 years; N=299	Exploratory and confirmatory factor analyses  N/A	PRFQ; Experience of Close Relationships; Emotional Availability; Symptomatic Distress	One Time Assessment Completion prior to Free Play Observation	.70, .82 and .75 for PM, CMS & IC	Unknown	No
Manual/ Belgium	2) First Time Parents (Mothers and Fathers) with children ages 8 to 13 months; N= 153	Exploratory and confirmatory factor analyses  N/A	PRFQ; Experience of Close Relationships; Emotional Availability; Symptomatic Distress	One Time Assessment Completion	.83, .81, .60, .72 and .91 for Competence, Role Restriction, Social Isolation, Marital Relationship and Total Parenting Stress	Unknown	No
UK	3) Mothers with Infants at the age of 10 months; N=136	Exploratory  Strange Situation Procedure (SSP)	PRFQ; Attachment Style	PRFQ- First Visit; SSP- 2 Months Later	Unknown	Unknown	No
Pontoppidan, M. (2015). <i>The effectiveness of the incredible years™ parents</i>	Mothers with Infants up to 4 Months	Randomized	RF; Parenting Confidence, Parental Stress &	Baseline: Post- Intervention	Unknown	Unknown	No



REFLECTIVE FUNCTIONING

and babies program as a universal prevention intervention for parents of infants in denmark: Study protocol for a pilot randomized controlled trial. <i>Trials</i> , 16(1), 1-11. <a href="http://10.1186/s13063-015-0859-y">http://10.1186/s13063-015-0859-y</a>	N=128	Incredible Years Parent & Babies Program	Sense of Competence, etc.	(4 months); Follow Up (child is 18 months)			
Peer Reviewed/Denmark							
Ramsauer, B., Lotzin, A., Mühlhan, C., Romer, G., Nolte, T., Fonagy, P., & Powell, B. (2014). A randomized controlled trial comparing circle of security intervention and treatment as usual as interventions to increase attachment security in infants of mentally ill mothers: Study Protocol. <i>BMC Psychiatry</i> , 14. 1-23 <a href="http://10.1186/1471-244X-14-24">http://10.1186/1471-244X-14-24</a>	Mothers with mental disorders and infants between 4- 9 months  N= 80	Control Study  Circle of Security Intervention or Treatment as Usual	RF; Maternal Sensitivity & Insensitivity, Attachment, Depressive Symptoms, Parenting Stress & Emotional Regulation, etc.	Baseline (infant 4-9 months); Follow Up (infant 16-18 months)	Unknown	Unknown	No
Peer Reviewed/Germany							
Rostad, W. L. (2014). <i>Examining the effectiveness of the circle of security parenting DVD program. (Doctoral</i>	Court-Mandated Caregivers who temporary lost	Quasi-Randomized Cross Over Design	Parent Reflective Functioning; Parental Acceptance & Rejection; Parent-	3 weeks prior intervention	Unknown	Unknown	No

REFLECTIVE FUNCTIONING

<p><i>dissertation</i>). Retrieved from ProQuest Dissertations &amp; Theses Global. (Order No. 3624654).</p> <p>Doctoral Dissertation/USA</p>	<p>custody of their child(ren)</p> <p>N=37</p>	<p>20 Week Circle of Security DVD Parenting Program</p>	<p>Child Relationship Characteristics; Substance Use; Depressive Symptoms; Children’s Negative Emotions; Barriers to Treatment</p>				
<p>Rostad, W., &amp; Whitaker, D. (2016). The association between reflective functioning and parent–child relationship quality. <i>Journal of Child and Family Studies</i>, 1-14. <a href="http://10.1007/s10826-016-0388-7">http://10.1007/s10826-016-0388-7</a></p> <p>Peer Reviewed/USA</p>	<p>Families &amp; Caregivers</p> <p>N=79</p>	<p>Regression Analysis</p> <p>N/A</p>	<p>RF; Parent- Child Relationships; Substance Use; Depression; Experience in Close Relationships; Parental Acceptance &amp; Rejection</p>	<p>Baseline</p>	<p>Unknown</p>	<p>Unknown</p>	<p>No</p>
<p>Rutherford, H. J., Goldberg, B., Luyten, P., Bridgett, D. J. &amp; Mayes, L. C. (2013). Parental reflective functioning is associated with tolerance of infant distress but not general distress: Evidence for a specific relationship using a simulated baby paradigm. <i>Infant Behavior and Development</i>, 36,</p>	<p>Mothers with at Least one Child Under the age of 2</p> <p>N= 21</p>	<p>Experimental</p> <p>Baby Simulator Paradigm</p>	<p>Parental Reflective functioning; Distress Tolerance</p>	<p>Prior to Intervention</p>	<p>Unknown</p>	<p>Unknown</p>	<p>No</p>

REFLECTIVE FUNCTIONING

635-641. <a href="http://10.1016/j.infbeh.2013.06.008">http://10.1016/j.infbeh.2013.06.008</a>							
Peer Reviewed/USA							
Rutherford, H., Booth, C., Mayes, L., Luyten, P., & Bridgett, D. (2015). Investigating the association between parental reflective functioning and distress tolerance in motherhood. <i>Infant Behavior and Development, 40</i> , 54-63. <a href="http://10.1016/j.infbeh.2015.04.005">http://10.1016/j.infbeh.2015.04.005</a>	Mothers During Postpartum Period  N=62	Experimental  Baby Simulator Paradigm	Parental Reflective Functioning; Distress Tolerance	Prior to Intervention	Unknown	Unknown	No
Peer Reviewed/USA							
<b>Reflective Functioning Rating Scale ( Meehan, Levy, Reynoso, Hill &amp; Clarkin, 2009)</b>							
Meehan, K. B., Levy, K. N., Reynoso, J. S., Hill, L. L., & Clarkin, J. F. (2009). Measuring reflective function with a multidimensional rating scale: Comparison with scoring reflective function on the AAI. <i>Journal of The American Psychoanalytic Association, 57</i> (1), 208-213. <a href="http://10.1177/000306">http://10.1177/000306</a>	Patients with Borderline Personality Disorder  N=49	Factor Analysis  N/A	RF	Baseline	.94 (lack of efforts to tease out mental states), .95 (awareness of the nature of mental states), .92 (recognition of the developmental aspects of	Unknown	No

REFLECTIVE FUNCTIONING

51090570011008					mental states		
Poster Summary/USA							
<b>Brief Reflective Functioning Interview (Rudden, Milrod &amp; Target, 2005)</b>							
Morel, K. & Papouchis, N. (2015). The role of attachment and reflective functioning in emotion regulation. <i>Journal of the American Psychoanalytic Association, 63(4)</i> , 15-20. <a href="http://10.1177/0003065115602447">http://10.1177/0003065115602447</a>	Undergrad Students  N=127	Exploratory	RF, Attachment Styles and Patterns in Relationships, Emotional Regulation	Baseline	Unknown	Unknown	No
Poster Summary/USA							
Rutimann, D. D., & Meehan, K. B. (2012). Validity of a brief interview for assessing reflective function. <i>Journal of the American Psychoanalytic Association, 60(3)</i> , 577-589. <a href="http://10.1177/0003065112445616">http://10.1177/0003065112445616</a>	Undergrad Students  N=27	Experimental  N/A	RF; -1 (negative RF, unproductive Mentalization) to 9 (exceptional RF, complex, reasoning about mental states)	2.5 to 10.6 months	.97	.79	No
Peer Reviewed/USA							
<b>Reflective Functioning Questionnaire (Levy, Meehan &amp; Hill, 2005)</b>							
Hill, L. L., Levy, K. N., Meehan, K. B., & Reynoso, J. S. (2007). Reliability of a multidimensional measure	Patients with Borderline Personality Disorder	Randomized Control Trial	High and Low Reflective Functioning	Baseline	Unknown	Unknown	No

REFLECTIVE FUNCTIONING

for scoring reflective function. <i>Journal of the American Psychoanalytic Association</i> , 55(1), 309-313. <a href="http://10.1177/00030651090570011008">http://10.1177/00030651090570011008</a>	N=90	N/A					
Poster Summary/ USA							
<b>Caregiver Reflective Functioning Scale (Gilbert, Whelan, Marvin &amp; Stewart, 2007)</b>							
Gilbert, J. L. (2008). <i>Reflective functioning and caregiver behavior: Development of caregiver reflective functioning scales (CRFS) for use with the Circle of Security Intervention (COSI)</i> . (Doctoral dissertation). Retrieved from <i>Dissertation Abstracts International</i> . (Order No. 3323375)	Families  N= 5 Caregiver-Child dyads	Exploratory  Circle of Security Interview	RF; Ordered Beta, Ordered-Insecure Alpha, Ordered-Insecure Gamma, Disordered-Insecure Delta & Disordered-Insecure Iota	Pre-Intervention	Unknown	Unknown	No
Doctor Dissertation/USA							
<b>Panic Specific Reflective Functioning Scale (Rudden, Milrod, Target, Ackerman &amp; Graf, 2006)</b>							
Graf, E. P. (2009). <i>The relationship of reflective functioning and severity of agoraphobia in the outcome of a psychoanalytic psychotherapy for panic</i>	Patients Diagnosed with Panic Disorder with or without Agoraphobia	Experimental	RF; Attachment	Baseline; Treatment Termination; 2,4,6,12 Months after Treatment	Unknown	.74	No

REFLECTIVE FUNCTIONING

<p><i>disorder</i>. (Doctoral dissertation). Retrieved from ProQuest Dissertations &amp; Theses Global. (Order No. 3378569).</p> <p>Doctoral Dissertation/USA</p>	N= 49	Panic Focused Psychodynamic and Applied Relaxation Therapy					
<p>Rudden, M., Milrod, B., Target, M., Ackerman, S., &amp; Graf, E. (2006). Reflective functioning in panic disorder patients: A pilot study. <i>Journal of the American Psychoanalytic Association</i>, 54(4), 1339-1343.  <a href="http://10.1177/00030651060540040109">http:// 10.1177/00030651060540040109</a></p> <p>Poster Summary/ USA</p>	<p>Patients with Panic Disorders</p> <p>N=26</p>	<p>Experimental</p> <p>Applied Relaxation Therapy or Panic Focused Psychodynamic Psychotherapy</p>	RF	Baseline	.74 & .86 for Reflective Functioning Scale & Panic Specific Reflective Functioning Scale	.68	No
<p><b>Computerized Text Analysis (CRF) of the RF system ( Fertuck, Mergenthaler, Target, Levy, &amp; Clarkin, 2012)</b></p>							
<p>Fertuck, E. A., Mergenthaler, E., Target, M., Levy, K. N., &amp; Clarkin, J. F. (2012). Development and criterion validity of a computerized text analysis measure of reflective functioning. <i>Psychotherapy Research</i>, 22(3), 298-305.  <a href="http://10.1080/10503307.2">http://10.1080/10503307.2</a></p>	<p>2 Studies:</p> <p>1)Non – Clinical Adults; N=40</p> <p>2) Persons with Borderline Personality Disorder;</p>	<p>Exploratory</p> <p>N/A</p>	RF	Pre- AAI	Unknown	.86	No

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011.650654	N= 73						
Peer Reviewed/ 1 <sup>st</sup> Study-UK; 2 <sup>nd</sup> Study- USA							
<b>Maternal Reflective Functioning Scale (Slade &amp; Patterson, 2005)</b>							
Daley, A. E. (2013). <i>Reflective functioning and differentiation-relatedness during pregnancy and infant attachment outcomes at one year.</i> (Doctoral dissertation). Retrieved from ProQuest Dissertations & Theses Global. (Order No. 3589757).  Doctoral Dissertation/USA	First Time Mothers  N= 35	Exploratory  Minding the Baby	Maternal RF; Women’s Experience of Pregnancy; Attachment; Self-Differentiation & Other-Relatedness; Significant Figures	Third Trimester of Pregnancy	Unknown	.84	N

**APPENDIX C: Certification of Ethics Approval**



November 24, 2015

Dr. Gina Wong  
Faculty of Health Disciplines\Graduate Centre for Applied Psychology  
Athabasca University

File No: 22024  
Certification Category: Human Ethics  
Expiry Date: November 23, 2016

Dear Gina Wong,

The Athabasca University Research Ethics Board Chair (AUREB) has reviewed your application entitled 'Examining the Construct Validity of a Measure of Reflective Functioning in Canadian Parents'.

Your application has been **Approved** and this memorandum constitutes a **Certification of Ethics Approval**. You may begin the proposed research.

AUREB approval, dated November 24, 2015, is valid for one year less a day.

As you progress with the research, all requests for changes or modifications, ethics approval renewals and serious adverse event reports must be reported to the Athabasca University Research Ethics Board via the Research Portal.

To continue your proposed research beyond November 23, 2016, you must apply for renewal by completing and submitting an Ethics Renewal Request form. Failure to apply for **annual renewal** before the expiry date of the current certification of ethics approval may result in the discontinuation of the ethics approval and formal closure of the REB ethics file. Reactivation of the project will normally require a new Application for Ethical Approval and internal and external funding administrators in the Office of Research Services will be advised that ethical approval has expired and the REB file closed.

**When your research is concluded**, you must submit a Project Completion (Final) Report to close out REB approval monitoring efforts. Failure to submit the required final report may mean that a future application for ethical approval will not be reviewed by the Research Ethics Board until such time as the outstanding reporting has been submitted.

At any time, you can login to the Research Portal to monitor the workflow status of your application. If you encounter any issues when working in the Research Portal, please contact the system administrator at [research\\_portal@athabascau.ca](mailto:research_portal@athabascau.ca).

If you have any questions about the REB review & approval process, please contact the AUREB Office at (780) 675-6718 or [rebsec@athabascau.ca](mailto:rebsec@athabascau.ca).

Sincerely,  
Sherri Melrose  
Chair, Research Ethics Board



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**APPENDIX D: Experiences in Parenting Study**

Experiences in Parenting Study

1. In what year were you born? (enter 4-digit birth year; for example, 1976)

2. What is your gender?

3. What is the highest level of school you have completed or the highest degree you have received?

- Less than high school degree
- High school degree or equivalent (e.g., GED)
- Some college but no degree
- Technical degree or diploma
- Bachelor degree
- Graduate degree

4. What are the first 3 digits of your postal code?

5. What is your approximate average household income?

6. How many children, by age, currently live in your household?

Less than 1 year old

1 year old

2 years old

3 years old

4 years old

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5 years old	<input type="text"/>
6 years old	<input type="text"/>
7 years old	<input type="text"/>
8 years old	<input type="text"/>
9 years old	<input type="text"/>
10 years old	<input type="text"/>
11 years old	<input type="text"/>
12 years old	<input type="text"/>
13 years old	<input type="text"/>
14 years old	<input type="text"/>
15 years old	<input type="text"/>
16 years old	<input type="text"/>
17 years old	<input type="text"/>
18 years old or older	<input type="text"/>

7. Which of the following best describes your current relationship status?

- Married
- Widowed
- Divorced
- Separated
- Common-law
- Single, never married

8. How would you describe your race/ethnicity?

9. Listed below are a number of statements concerning you and your child. Read each item and decide whether you agree or disagree and to what extent.

10. Use the following rating scale, with 7 if you strongly agree; and 1 if you strongly disagree; the midpoint, if you are neutral or undecided, is 4.

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Strongly Disagree

Neutral

Strongly

Agree

- The only time I'm certain my child loves me is when he or she is smiling at me.
- I always know what my child wants.
- I like to think about the reasons behind the way my child behaves and feels.
- My child cries around strangers to embarrass me.
- I can completely read my child's mind.
- I wonder a lot about what my child is thinking and feeling.
- I find it hard to actively participate in make believe play with my child.
- I can always predict what my child will do.
- I am often curious to find out how my child feels.
- My child sometimes gets sick to keep me from doing what I want to do.
- I can sometimes misunderstand the reactions of my child.
- I try to see situations through the eyes of my child.
- When my child is fussy he or she does that just to annoy me.
- I always know why I do what I do to my child.
- I try to understand the reasons why my child misbehaves.
- Often, my child's behavior is too confusing to bother figuring out.
- I always know why my child acts the way he or she does.
- I believe there is no point in trying to guess what my child feels.

10. Most people find that being a parent has its ups and downs. Taking everything into account, which of these statements best describes how you are coping with being a parent these days?

Select One Answer:

- 1. I feel I am not coping at all these days
- 2. Most of the time I feel I am not coping very well
- 3. Sometimes I feel I am coping but sometimes things get on top of me
- 4. Most of the time I feel I am coping pretty well
- 5. I always feel I am coping really well – things never or hardly ever get on top of me

11. The questions in this scale ask you about your feelings and thoughts during the last month. In each case, please indicate with a check how often you felt or thought a certain way.

Never   Almost Never   Sometimes   Fairly Often   Very Often

1. In the last month, how often have you felt that you were unable to control the important things in your life?

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2. In the last month, how often have you felt confident about your ability to handle your personal problems?
3. In the last month, how often have you felt that things were going your way?
4. In the last month, how often have you felt difficulties were piling up so high that you could not overcome them?

12. How often is each of the following kinds of support available to you if you need it?

None of the time    A little of the time    Some of the time    Most of the time    All of

the time

1. Someone to help you if you were confined to bed
2. Someone to show you love and affection
3. Someone to have a good time with
4. Someone to confide in or talk to about yourself or your problems
5. Someone who hugs you
6. Someone to get together with for relaxation
7. Someone to prepare your meals if you were unable to do it yourself
8. Someone to help with daily chores if you were sick
9. Someone to share your most private worries and fears with
10. Someone to turn to for suggestions about how to deal with a personal problem
11. Someone to do something enjoyable with
12. Someone to love and make you feel wanted

13. Please rate the extent to which you agree or disagree with each of the following statements.

Strongly Disagree    Somewhat Disagree    Disagree    Agree    Somewhat Agree    Strongly Agree

1. The problems of taking care of a child are easy to solve once you know how your actions affect your child, an understanding I have acquired.
2. Even though being a parent could be rewarding, I am frustrated now while my child is at his / her present age.
3. I go to bed the same way I wake up in the morning, feeling I have not accomplished a whole lot.
4. I do not know why it is, but sometimes when I'm supposed to be in control, I feel more like the one being manipulated.
5. My parent was better prepared to be a good parent than I am.
6. I would make a fine model for a new parent to follow in order to learn what she/he would need to know in order to be a good parent.
7. Being a parent is manageable, and any problems are easily solved.
8. A difficult problem in being a parent is not knowing whether you're doing a good job or a bad one.
9. Sometimes I feel like I'm not getting anything done.

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10. I meet by own personal expectations for expertise in caring for my child.
11. If anyone can find the answer to what is troubling my child, I am the one.
12. My talents and interests are in other areas, not being a parent.
13. Considering how long I've been a parent, I feel thoroughly familiar with this role.
  
14. If being a parent of a child were only more interesting, I would be motivated to do a better job as a parent.
15. I honestly believe I have all the skills necessary to be a good parent to my child.
16. Being a parent makes me tense and anxious.
17. Being a good parent is a reward in itself.