

2000

# The Multiple Emotions Deficit In An Adult Population Sample

James A. Wrable  
*Seton Hall University*

Follow this and additional works at: <https://scholarship.shu.edu/dissertations>

 Part of the [Psychology Commons](#)

---

## Recommended Citation

Wrable, James A., "The Multiple Emotions Deficit In An Adult Population Sample" (2000). *Seton Hall University Dissertations and Theses (ETDs)*. 1642.  
<https://scholarship.shu.edu/dissertations/1642>

**THE MULTIPLE EMOTIONS DEFICIT IN AN ADULT POPULATION SAMPLE**

**BY**

**JAMES A. WRABLE**

**Dissertation Committee:**

**Bruce Hartman, Ph.D., ABPP**

**Laura Palmer, Ph.D.**

**John Smith, Ed.D.**

**Submitted in partial fulfillment of the  
requirements of the Degree of Doctor of Philosophy  
Seton Hall University**

**2000**

## TABLE OF CONTENTS

LIST OF TABLES.....	iv
LIST OF FIGURES.....	v
<b>I INTRODUCTION.....</b>	<b>1</b>
Statement of the Problem .....	1
Background of the Problem.....	2
Development of Multiple Emotions in Children.....	3
Adult Expression of Emotion.....	7
The Role of Emotions in Psychotherapy and Therapeutic Change.....	9
Significance of the Study.....	12
Implications for Treatment.....	14
Research Implications.....	15
Research Questions.....	16
Hypotheses.....	17
Definition of Terms.....	18
Limitations of the Study.....	18
Summary.....	19
<b>II REVIEW OF RELATED LITERATURE.....</b>	<b>20</b>
Overview.....	20
Developmental Research.....	21
Emotions Research .....	43
Clinical Research .....	51
Summary.....	60
<b>III METHODOLOGY.....</b>	<b>62</b>
Overview.....	62
Participants.....	63
Instrumentation.....	65
Global Assessment Scale.....	65
Reliability.....	66
Validity.....	66
Differential Emotions Scale.....	67
Reliability.....	70
Validity.....	70
Procedure.....	72
Data Collection, Scoring and Recording .....	74
Data Processing and Analyses.....	74

<b>IV ANALYSIS OF THE DATA.....</b>	<b>76</b>
Participants.....	76
Descriptive Statistics for the DES and GAS.....	77
Tests of Hypotheses.....	79
DES Score as a Screening Variable.....	79
Mean Differences between Control and Moderate Level of Functioning Groups.....	81
Post Hoc Multiple Comparisons Between Control, Moderate and Severe Level of Functioning Group Means.....	82
Analysis of Results.....	82
Scale Intercorrelations.....	82
Summary.....	85
<b>V CONCLUSIONS AND RECOMMENDATIONS.....</b>	<b>86</b>
Discussion.....	86
Multiple Emotions as a Screening Variable.....	88
Distribution of the Differential Emotions Scale.....	89
Scale Intercorrelations.....	89
Tests of Means.....	90
Differential Emotions Scale.....	90
Level of Functioning.....	91
Limits of the Present Study.....	91
Recommendations for Future Research.....	95
Summary and Conclusions.....	96
Multiple Emotions Deficit.....	97
Overall Level of Functioning.....	98
References.....	99
Appendix.....	125
A. Differential Emotions Scale Instructions.....	126
B. Informed Consent Form.....	128
C. DES Items Grouped Into A Priori Scales.....	131
D. Differential Emotions Scale.....	133

## List of Tables

<b>Table 1: Descriptive Statistics for DES Scale in the Clinical Moderate and Severe Levels of Functioning and Non-Clinical Samples.....</b>	<b>78</b>
<b>Table 2: Descriptive Statistics for the GAS Scale for the Moderate and Severe Range of Functioning Groups.....</b>	<b>80</b>

**List of Figures**

**Figure 1: Distribution of Raw Scores for the DES and GAS Scales Clinical**

**Group.....84**

## Chapter I

### INTRODUCTION

This study explores the construct of multiple emotions and its impact on human functioning as well as the effect its presence or absence might have on the degree of difficulty in overall level of functioning found both in normal subjects and in those who present for psychological or psychiatric services. This chapter begins with a statement of the problem and its underpinnings in developmental and child psychology. Following is a section that outlines the background of the problem including research conducted in the areas of multiple emotional development in children, emotions theory as applied to adults, evidence for the presence of multiple emotions in adults and clinical implications for psychotherapy. The chapter then moves on to examine the significance of the study which is followed by sections that outline the research questions and hypotheses, definition of terms and limits of the study.

#### Statement of the Problem

In 1977, child psychologist Susan Harter observed that most of the 5 to 9 year old children referred to her complaining of school and adjustment problems had difficulty acknowledging multiple emotions. For example, one of her patients would not acknowledge that though she was angry with her mother for not getting her a toy, she also felt love towards the mother and happy regarding an upcoming positive event. Harter hypothesized that this problem was a result of a delay in the children's emotional development and presented a technique and case example as to how this deficit might be

alleviated. Harter's work brought about additional research into children's expression of multiple emotions (Dunn, Creps & Brown, 1996; Harris, Johnson, Hutton & Andrews, 1989; Harter & Buddin, 1987; Kestenbaum & Gelman, 1995; Mayer & Salovey, 1997; Osterhaus, 1999; Steele, Croft & Fonagy, 1999; Terwogt, 1989, 1990; Wintre & Vallance, 1994) that has increased our understanding of this process as well as advanced the study of children's emotional development in general. In addition, these efforts have resulted in the development of several therapeutic techniques aimed at improving children's ability to identify, express and acknowledge multiple emotions, which have been reported to have resulted in improved functioning and decreased distress in children (Cain & Patterson, 1990; Cain & Smith-Moore, 2000; Cameras, Sachs-Alter & Ribordy, 1996; Hyson, 1994; Peng, Johnson, Pollock & Glasspool, 1992; Parke, 1994).

Though much attention has been drawn to the problems surrounding children's multiple emotional development, there has been no systematic research to determine whether a deficit or lack of development in expressing or acknowledging multiple emotions as a child extends into adulthood and specifically, in adults who present for psychological or psychiatric services. For the purposes of this study, the investigator has labeled this deficit the Multiple Emotions Deficit (MED). This study will attempt to determine if the MED can be identified in adult subjects. It will also attempt to highlight, just as has been observed in children, that this deficit could have negative effects on an individual's daily level of functioning and/or be a factor related to emotional distress or an emotional disorder.

### Background of the Problem



This section will present a summary background that will provide the reader with a basic understanding of the area of emotions research in children and adults that led to the identification of the problem. It will also address the implications that the MED might have regarding further research in emotions and clinical applications.

#### Development of Multiple Emotions in Children.

The majority of investigations into the origin of the development of emotional expression and acknowledgement of singular emotions concur that by age 2 identification and expression of the basic emotions of happiness, sadness, anger and fear have been developed and that by age 5 most children are able to access and express the 10 discrete human emotions (happiness, sadness, anger, fear, disgust, interest, shame, surprise, contempt and guilt) as defined by Izard (1971), (see also Gebelt & Stapley, 1997; Haviland-Jones, McNeal, 1999; Wellman, Harris, Banerjee & Sinclair, 1995).

The study of the development of multiple emotions in children is the one area that has directly identified the problem of expression of multiple emotions. Since Susan Harter's initial investigations in 1977, follow up investigations have provided evidence that children are slow to acknowledge multiple emotions and that there is a developmental progression in the attainment of such that is relative to the underlying and co-developing cognitive structures in the child (Donaldson & Westerman, 1986; Fischer, 1990; Harris, 1983; Harter, 1982, 1983; Harter & Buddin, 1987; Reissland, 1985; Tremblay, Kirouac & Dore, 1987; Terwogt, Koops, Osterhoff & Olthof, 1986;). From her observations of children, Harter (1977) proposed that the gradual development of multiple emotions seemed to follow the developmental stage theories of Piaget (1965).

Harter (1977) proposed that the stages of pre-operational thought and concrete operational thought were critical and intimately related to a child's development and cognitive and emotional maturity. Just as a child might have difficulty during the pre-operational thought period in determining two physical judgements such as height and width in a conservation task, she proposed that children at this stage have not yet acquired the ability to respond objectively and integrate opposing dimensions or facets of an emotional nature. In contrast, she observed that the concrete operational child is often more likely to simultaneously consider more than one attribute of an event or situation and is therefore better able to understand the relationship between two dimensions which regarding emotions, would allow the child to consider and accept opposite valence emotions.

In adopting this view, Harris, Olthof and Terwogt (1981) reported that they found that the normal children in their study that were overly externally preoccupied tended to present more behavioral and emotional problems. External preoccupation resulted in the child being able to identify only an emotion linked to an outward event such as feeling angry following being let down by a parent. Children who were also able to respond to and identify their external and internal feelings were able to acknowledge being angry as well as reflect on the fact that they held affection towards the parent. The researchers concluded that the age progression from preoccupation with external manifestations of an emotion to internal focus was a chief developmental step. In their study of troubled children, Selman, Brion-Meisels and Wilkins (1996) concluded that a lack of self-reflection (by these children on their own mental emotional state) seemed to coincide with cognitive deficiencies such as the child's ability to abstract, concentrate and/or

problem solve but not to the degree to negatively affect their overall level of intelligence. Harris, Johnson, Hutton and Andrews (1989) examined normal children's causal appraisals of events and concluded that children up to the pre-operational period fail to acknowledge multiple emotions because they appear to be less detail oriented and externally focused. Harris added that these children also seemed to attend to only the most recent or salient component of an event in making their appraisals. Finally, Terwogt (1989) proposed that in the span of time from age 5 to 12, a rapid increase in cognitive abilities occurs and children's emotions become more complex as their perceptions and understanding increases. Terwogt also cited external factors that also affect a child's awareness of his/her own emotions, such as adult demands for emotional restraint, which lead to greater internalization and self-control.

These investigations prompted Harter and Buddin (1987) to propose and test their hypothesis that a five-stage developmental emotional progression occurs in children that concludes with full multiple emotion acknowledgement in normal children. The stages she described are as follows: (a) age 4 to 5, no identification of multiple simultaneous emotions, (b) identification of simultaneous emotions of the same valance (positive versus negative) directed toward one target, (c) identification of simultaneous emotions of the same valance directed toward two or more targets, (d) identification of simultaneous emotions of a different valance each directed toward a different target and (e) from about ages 8 to 12, identification of simultaneous emotions of a different valance directed toward the same target. Follow up investigations into this stage sequence have supported Harter's conclusions (Harter & Whitesell, 1989; Holodynski, 1996; Kestenbaum & Gelman, 1995; Terwogt & Harris, 1993; Wintre & Vallance, 1994)

though Neo-Piagetian theorists (Case, 1991; Fisher, Shaver & Carnochan, 1990) have been able to demonstrate that children of ages 4 to 6 years are able to combine opposite emotional categories. However, these theorists have not been able to demonstrate early learning with respect to opposite valance emotions.

The construct of multiple emotional development in children has also been investigated by those researchers studying the construct of ambivalence. Ambivalence has been viewed as both a problem (ambivalence can result in confusion, poor decision making, interpersonal conflicts and withdrawal) and a healthy (ambivalence may result in a full appraisal of a situation that can result in careful consideration of a situation as well as an understanding that events are multidimensional and not clear cut) response. Since ambivalence involves the identification of both positive and negative feelings or thoughts, a child's emotional maturation is seen as a crucial element in determining whether a child can identify and overcome ambivalent conflicts that may arise (Sincoff, 1990). Terwogt (1990) studied children's emotional experiences and their understanding of their emotional state. Based on his results, he found that children up to age 7 appear to be able to acknowledge only one emotion and therefore lack the ability to experience ambivalence, which he considered an essential developmental step. Glasberg and Aboud (1982) reported that a difference of 2 years seems to make a notable contrast in a child's acceptance of negative emotions in regards to ambivalence. They presented an example wherein 7 year old children were less likely than 5 year olds to deny sad feelings and more likely to include sadness in their emotional reports. Sincoff (1990) in her review article on ambivalence, concluded that a child's ability to recognize and confront ambivalence is a developmental achievement usually not attained until late childhood.

Terwogt (1989) and Sincoff (1990) both assessed children who were diagnosed with emotional disorders and concluded that those children who failed to achieve the developmental progression towards the experience and expression of multiple emotions had great difficulty overcoming ambivalence. Both researchers hypothesized that failure to remediate this deficit could cause or intensify problems encountered in adulthood, if not the development of more significant psychiatric disorders. Selman (1981) also identified the problem regarding multiple emotions and ambivalence. He assessed children's appraisals of emotional events and concluded that children did not come to view unconscious internal processes as possible sources of emotions until adolescence. He noted that a child's level and degree of emotional expression was directly correlated with the ability to confront and overcome ambivalent conflicts.

Several studies with children have concluded that remediation of delays in the expression of multiple emotions is both possible and beneficial (Cain & Patterson, 1990; Camras et al., 1996; Coren & Russell, 1992; Gellert, 1976; Harter, 1977; Harter & Buddin, 1987; Hyson, 1994; Peng, Johnson, et al., 1992; Sincoff, 1992; Terwogt et al., 1986). Peng, Johnson, et al. (1992), in their attempt to train children to acknowledge mixed emotions, found that an inability to recognize multiple feelings towards others or oneself was a common presenting problem for children referred due to emotional difficulties.

### Adult Expression of Emotion

A review of the literature regarding emotions in adults resulted in very little evidence of direct investigation into the area of multiple emotions. Selected research

from the general research regarding emotions will be presented that lends support to this investigation and the establishment of the constructs of multiple emotions and the MED.

Initial investigations and theorizing regarding human emotions began with the work of James (1890). A review of the literature since that time reveals a lapse of investigation into emotions up until the work of Plutchik (1962), Schacter and Singer (1962) and Cannon and Pierce (1968). In the last 30 years emotions research has gained significant interest from the various branches in the field of psychology, which has resulted in a wealth of data and information regarding emotions. However, a more specific search of the literature reveals that no researchers have directly targeted the construct of multiple emotions despite that fact that many have cautioned for the need to account for such (Ekman & Freisen, 1986; Flowers & Booarem, 1989; Izard & Bartlett, 1972; McCarthy, Mejia & Liu, 2000; Polivy & Doyle, 1980). Some acknowledgement for the presence of multiple emotions in adults has come about as a by-product or extraneous variable in studies investigating emotions in general.

Plutchik (1962) was one of the first theorists to consider the construct of multiple emotions. In assessing the physiological and overt expressive patterns of activity associated with emotions, he presented examples of "emotional mixtures" or "secondary emotions" that he viewed as a mixture of two primary emotions. Plutchik proposed that these mixtures formed new discrete emotions and postulated 84 separate emotions that could evolve out of such mixtures that were given labels such as depression, love and anxiety. Izard (1971), in the attempt to develop a theory of emotions, noted that Plutchik's labels were too broad and vague and proposed that emotion mixtures were actually composed of singular discrete emotions that are merely experienced

simultaneously or in close proximity but that never lose their own identity. Izard labeled these mixes as emotional patterns but maintained that no more than 10 discrete emotions were capable of being experienced either separately or in conjunction. Izard further theorized that one emotion could give rise to or trigger another emotion and proposed that it could be this process, among others, that accounts for the origin of the multiple emotion experience. He (1987) also proposed that emotional patterns could appear as blends of emotion on the face and found cross-cultural evidence that these blends could be assessed and identified by an examination of the facial structure. This idea has been supported with empirical evidence by several of the emotions researchers (Ekman, 1971; Ekman, Freisen & O'Sullivan, 1988; Nummenmaa, 1964). Assessment by facial structure, however, may be limited and inaccurate as a person may experience a number of emotions and emotions of different intensity, which may preclude complete expression of each singular emotion on the face (Polivy, 1986).

#### The Role of Emotions in Psychotherapy and Therapeutic Change.

Emotion has been considered central to the human condition and has the potential to influence all aspects of human performance (Heesacker & Bradley, 1997). Therefore, emotions research has strong implications for psychotherapy.

Bohart (1977) assessed cathartic expression in adults and found that full expression of emotion and cognitive processing of such was the most significant factor in a successful psychotherapy treatment outcome. Orlinsky and Howard (1986) conducted an extensive review of 35 years of psychotherapy outcome research and reported that in

most cases, emotional expression was cited as a significant if not primary factor in a patient's improvement or change.

DuBrin and Zastowny (1983) conducted a longitudinal study of feeling-expressive therapies and reported that subjects that did not express feelings did not show a significant level of improvement. They also found evidence that change in level of functioning or progress in treatment was also significantly and positively correlated to expression of previously avoided conflict-laden or unconscious feelings as well as increased emotional expressiveness.

Greenberg and Safran (1989) reviewed the research literature regarding psychotherapy treatment and outcome and noted that in the last 20 years they have observed a trend in the field towards broader theoretical models that combine and integrate constructs such as cognition and emotion. In developing their theory and technique called Focused Expressive Psychotherapy (FEP), Engle, Beutler and Daldrup (1991) also felt it was crucial to consider the interplay of cognition and emotion and noted that if a patient presented with an inability to consider their emotional and cognitive state in total, most clinicians would consider this a dysfunction.

Even theories that have historically been viewed as failing to account for clients' emotional status have come to place greater emphasis on an individual's emotional functioning. For example, in defense of Cognitive Therapy (that has gained a reputation of being too intellectually focused), Newman (1991) and Beck (1995) noted that emotions were not downplayed but indeed seen as a central element in both the theory and treatment prescriptions. Newman provided a systematic method for enhancing and expanding as well as assessing a client's emotional expression. Similarly, Engle, Beutler



and Daldrup's (1991) FEP method includes assessing for and treating blocked emotions in adults.

Despite a general recognition of the importance of emotional expression in psychotherapy, however, no researchers have taken into account the possibility that some of their patients or subjects may have had a developmental difficulty in emotional expression. Some researchers have addressed what appears to be blocked or repressed emotions, but have failed to consider whether these individuals were capable of experiencing simultaneous multiple emotions.

Several studies have however, reported and cautioned researchers regarding the problem with multiple emotions which as a by-product has also provided evidence for the existence of the construct in adults.

In attempting to assess the emotional effect of an exam situation, Folkman and Lazarus (1985) and Smith and Ellsworth (1987) both reported that subjects tended to report more than one emotion on self report scales such as the Multiple Affect Adjective Checklist (MAACL) (Zuckerman, 1960). Four separate studies that attempted to induce a discrete emotion in a lab situation reported that multiple emotions were reported on self report scales and proved to be a confounding variable in each study (Pittman & Pittman, 1979; Roth & Kubal, 1975; Strickland, Hale & Anderson, 1975; Zuckerman, Lubin, Vogel & Valerius, 1964). Jones and Martin (1992), while attempting to study conflict resolution, reported evidence that adult subjects were able to self-report two emotions in parallel. Finally, in his attempt to study the effects of failure to resolve ambivalence in adulthood, Raulin (1984) reported that subjects that had a higher degree of emotional

distress or psychiatric disorder also had less acknowledgement of ambivalent feelings as compared to normals who reported several emotions and no ambivalent conflicts.

### Significance of the Study

In 1934, Strachy noted that the role of affect in psychology appeared to be largely overlooked, avoided or taken for granted. Forty-five years later, Robert Zajonc (1980) reviewed the literature regarding emotions and psychotherapy and concluded that affective phenomena had still been largely ignored by academic psychologists and urged the field to consider the centrality of emotions in human functioning. In their book Emotion, Psychotherapy and Change, Safran and Greenberg (1991), based on their observations in the field, concluded that Zajonc's challenge had been taken on and found evidence that most areas of psychological theory and research had attempted to integrate research from various branches in the field of psychology. Numerous theorists and clinicians including Lazarus (1981), Meichenbaum (1992), Ellis (1984), Beck (1987) and Safran (1993) have incorporated emotions and emotions concepts for consideration in the development of their theories and applications. However, no theorists have directly considered the construct of multiple emotions in adult functioning in the way it has been addressed with children.

Lazarus (1991) noted a progression in the field of psychology that has proceeded from a focus on behavior to cognition and most recently to emotion as the new spawning ground for research and clinical applications. Despite these improvements, Guest and Marshall (1997) reviewed the research literature regarding emotions and concluded that no systematic model of emotion has yet to surface. They urged that further empirical

research is strongly needed that stresses emotions as a central feature in both theory and practice applications.

One of the most noteworthy calls for investigations into the relationship between human emotions and psychotherapy comes from Heesacker and Bradley (1997) who have noted that though advances have been made in the domains of emotions and psychotherapy separately, few have yet to attempt to combine these results and take into account the mutual influence they may have on each other.

As a testament to their concerns, Heesacker and Bradley (1997) reviewed the American Psychological Association's curricular requirements in graduate counseling psychology and were surprised to find that no core course in human emotions is required. In addition, they found that emotions were only tangentially discussed in 10 graduate textbooks in counseling psychology. Heesacker and Bradley also reviewed licensed psychologists continuing education courses and found that only a small percentage (6%) offered courses regarding human emotions and all were regarding the basics. Heesacker, Conner and Prichard (1995) assessed 35 psychologists at counseling centers and found that most carried inaccurate beliefs about emotion concepts as compared to findings from emotion research. In the 800 page text, The Handbook of Counseling Psychology (APA, 1992) not a single notation for "emotion," "affect," or "feelings" was found let alone "multiple emotions." Though Counseling psychologists historically have worked with higher functioning individuals, the failure to consider this construct at least in a cursory manner appears to be a glaring void.

Heesacker and Bradley (1997) proposed that the lack of research on human emotion is a result of a historic view that human emotions are too difficult to study.

Snyder, Berscheid and Glick (1985) believed this historic view came about due to emotion constructs being too vaguely defined and therefore difficult to measure. However, since the early investigations into human emotions, numerous advances have been made in measurement and description of human emotions (Heesacker & Bradley, 1997; Plutchik & Kellerman, 1989).

Heesacker and Bradley (1997) concluded that what is needed is an increase in the link between practitioners, applied scientists and basic scientists. This study is an attempt to address this issue in that it involves research not only into human emotions, namely multiple emotions, but also the role that a person's ability to experience multiple emotions plays in ones level of overall functioning.

Though many researchers have identified the need to consider multiple emotions as a central construct to be assessed and accounted for (Izard, 1971; Polivy, 1986; Tergwot, 1990), aside from the work done with children (Harter, 1979, 1982; Sincoff, 1990; Tergowt, 1990) multiple emotions has received little consideration and investigation.

### Implications for Treatment

Aside from the apparent indications for psychotherapy and emotions research, emotional expression has been cited as an important factor to be considered regarding physical problems and general level of functioning. Pennebaker, Colder and Sharp (1990) and Watson and Pennebaker (1989) assessed individuals who suffered from traumatic experiences and found repeated evidence that emotional expression resulted in

biochemical indications of improved immune system functioning and reduction in the number of visits to a physician.

Numerous studies have been conducted in attempts to determine the role that emotions play in physical illness and disease including cancer (Jensen, 1987), coronary heart disease (Kuhn, Myers & Davis, 1988) and a variety of other diseases (Beutler & Hamblin, 1986). Cox and McCay (1982) concluded that the strongest psychosocial correlate of cancer is an anti-emotional attitude or negative view towards expressing emotions, particularly negative emotions. Research investigations regarding psychosomatic disorders have found evidence that inhibition of emotion in general may be related to the development of chronic diseases (Achterberg-Lawlis, 1982; Morris, Greer, Pettingale & Watson, 1981; Spergel, Ehrlich, & Glass, 1978). King and Emmons (1990) reviewed the literature concerning the relation between emotional expression and physical illness and concluded that emotional expression appears to be a determining and causal factor regarding maintenance of physical illness as well as an indicator of recovery from such. Beutler et al. (1986) and Greenberg and Safran (1987) have recommended that treatment of both physical and psychosomatic disorders should be designed to include facilitating expression of emotion. None of these investigations have included an assessment of multiple emotions or considered how the MED may or may not inhibit remission or aid progress in these patients.

### Research Implications

Polivy (1981) noted that many studies into human emotions have attempted to induce and assess for only one emotion. However, and especially in the case of studying

normals, she identified that additional emotions may be triggered and add to the target emotion being studied thus possibly blurring the results and outcomes of the investigation. In addition, she proposed that, based on their emotional status, individuals might enter an experiment already holding several emotions that could further cloud the results. Polivy (1981) concluded from her research on mood induction that naturally occurring emotions seem to occur in clusters rather than singularly which adds support to the contention that the multiple emotion experience is a common one. In addition, she found that attempting to induce one particular emotion may result in the arousal of several emotions and that elevating the intensity of one emotion would often elevate other emotions. Polivy's work provides clear evidence for both the existence of the construct of multiple emotions as well as the need for it to be addressed.

In conclusion, though many researchers and clinicians in the child development arena have begun to address the construct of multiple emotions, none of the researchers investigating emotions or psychotherapy in adults have addressed the construct directly. This study is aimed at filling this gap which is viewed as both an effort to further the basic research on emotions and psychotherapy as well as combine the two areas which has been called for in the field. By identifying the construct of multiple emotions and the possible impact a deficit in such might have on functioning, it is proposed that our view of human functioning will be broadened as well as offer the field an important variable to consider in research and clinical theories.

### Research Questions

Using self-report ratings gathered on the Differential Emotions Scale (DES) (Izard, 1972) from a non-clinical and clinical population, this study will determine the number of simultaneous emotions identified by the subjects and correlate these results to their level of functioning as rated on the Global Assessment Scale (GAS), (Endicott, Spitzer, Fleiss & Cohen, 1976). Consistent with the child developmental data (Harter, 1977, Harter & Buddin, 1987) the study will attempt to determine if individuals who have a lower level of functioning also report fewer emotions as compared to non-clinical or normal individuals who would be expected to offer a greater number of reported emotions.

Specifically, the questions to be addressed are as follows:

1. Do individuals who present a high level of overall functioning (as estimated by the GAS scale) report the greatest number of simultaneous emotions?
2. Is there a positive correlation between overall level of functioning and the number of simultaneous emotions that are reported?

### Hypotheses

Based on the research obtained by the developmental psychologists regarding multiple emotions the hypotheses for this study are as follows:

1. Consistent with the developmental data in children, adult subjects will present the greatest number of emotions when their overall level of functioning is in the highest range.
2. An adult's overall level of functioning is positively correlated with the number of simultaneous emotions that are reported.

### Definition of Terms

Discrete emotions. In keeping with the Discrete Emotions Theory of Izard (1971), discrete or singular emotions are identified as emotions that maintain their own identity even when experienced simultaneously. These emotions include anger, sadness, fear, disgust, interest, shyness, guilt, contempt, joy and surprise.

Multiple emotions. Multiple emotions are considered the experience (innate physiological symptoms and/or associated cortical activity) of and/or the expression (verbal, behavioral) of more than one discrete emotion at one time (simultaneous).

Multiple Emotions Deficit (MED). The MED is considered an inability to experience or identify more than one discrete emotion at a specific point in time.

Mixed emotions. As differentiated from multiple emotions, mixed emotions, as identified by Plutchik (1962), are the result of the process that occurs when two or more discrete emotions combine to form a subjective experience such as "depression" or "anxiety."

### Limitations of the Study

The present study will attempt to assess for a construct that has yet to be studied or identified directly in adult populations. As a result, conclusions drawn from the results are considered inferential. The study is also restricted in its reliance on a subjective rating scale (DES), which will be used to infer as evidence that adults experience multiple emotions and from this assumption infer that the MED is or is not present. It is possible



that other factors (such as distractibility, poor concentration or lack of motivation) may inhibit a subject's rating on this scale and therefore conclusions offered can only be speculative. However, at this time, there are no other reliable or alternative instruments (such as physiological measures) available to assess for this construct.

### Summary

Developmental psychologists have examined how children come to develop the experience of simultaneous multiple emotions and the problems that result in failure to achieve this important developmental step. These researchers and clinicians have devised techniques to address this deficit in children and have reported that their efforts have been successful in alleviating the problem. There has been no similar systematic research conducted on adults to determine whether the ability to experience or express simultaneous multiple emotions is a problem and possibly, at the heart of some adult complaints. This study proposes that some adults present this deficit herein named the Multiple Emotions Deficit. The study also proposes that this deficit is more likely to be found in individuals that present a lower level of overall functioning and one that might cause them to seek psychological or psychiatric services. Evidence has been presented in this chapter that reviews some of the research regarding expression of multiple emotions in children and adults. It has also highlighted work that has called for an investigation of the construct and how evidence for the existence of the problem in adults might be applicable to clinical situations.

## Chapter II

### REVIEW OF RELATED LITERATURE

#### Overview

The multiple emotions construct has received both empirical and theoretical attention by developmental psychology researchers and theorists. These individuals have concluded that delays in progression or failure to progress to the level in which a child can express multiple simultaneous emotions is a deficit that is correlated with emotional distress, disorders and impaired functioning. The purpose of this investigation will be to attempt to determine, similar to that which has been observed in children, whether adult individuals who present for psychiatric or psychological outpatient services fail to acknowledge multiple simultaneous emotions of an equal number as compared to subjects from the adult normal population or relative to ones overall level of functioning.

Up to the present time, there has been no direct empirical investigation of the multiple emotions construct in adult populations. This chapter will attempt to familiarize the reader with the construct of multiple emotions by providing a review of the research in which the construct has been addressed and from which this investigation evolved. This research falls under three subsections of psychology research namely, developmental, emotions and clinical.

The developmental section will address topics including the origin of emotion and multiple emotions. It will highlight the work that has addressed the hypothesis that failure to progress to the emotional level of being able to experience and/or express multiple emotions is a factor related to emotional problems in children, a major point

from which this study was derived. Given that the development of emotion and cognition appear to co-occur, the reader will be provided with a background of child cognitive development as it relates to the cognitive processes associated with and likely required for the experience of multiple emotions. Finally, the developmental section will review the techniques and treatment outcomes that the developmental clinicians and researchers have used to address and alleviate the problem.

The second area to be examined, emotions research, will be presented in effort to illustrate the basic underlying theoretical concepts and research regarding emotions in general as well as this subspecialties treatment of multiple emotions. This segment will also address the debate of the primacy of cognition versus emotion and provide research evidence in which the multiple emotions construct has been cited as a confounding variable in research.

Finally, and in support of the significance or need to address the multiple emotions construct in adults, this review will present research that has addressed emotional expression relative to the general notion that lack of overall emotional expression is correlated with not only emotional but physical and behavioral disorders.

### Developmental Research

Investigations into the origin, development, and function of human emotion have resulted in empirical evidence that suggests that from birth, humans present physiological and behavioral evidence of emotion which has been proposed by some to be an innate and adaptive mechanism geared towards survival (Abe & Izard, 1999; Camras, Sullivan & Michel, 1993a; Darwin, 1872/1965; Heesacker & Bradley, 1997; Langsdorf, Izard,

Rayias & Hembree, 1983; LeDoux, 1987). The majority of this evidence comes about as a result of research that has assessed and categorized the facial representation of emotion in infants.

Several researchers, using facial expression techniques, have attempted to establish that the presence and utility of emotion is evident in infancy if not birth. Malatesta, Jones and Izard (1987) assessed the facial expressions of 80 infants at birth using the Facial Action Coding System (FACS) developed by Ekman et al. (1976), which is a technique that sections off or isolates parts of the face. These sections are then compared to standardized pictures that are representative of an emotion for that section of the face. The investigators reported that in all subjects they were able to achieve accurate and reliable identification of all the 10 basic emotions except contempt (which likely requires a higher level of cognitive development). Applebaum, Butterfield and Culp (1993), in their development of the IFEEL pictures series, asked 145 mothers to identify the emotion(s) of infants, aged 3 to 12 months, when presented with pictures of children who, as previously determined by the investigators, presented the facial expression of one of the four basic emotions happy, angry, sad and fear. The investigators reported that the mothers were 95% accurate in their ratings across age groups and that the basic emotions could be identified in all the age groups with the same accuracy. In a similar study, Wellman et. al. (1995) had both parents and non-parents assess the facial response of children's facial expressions from birth to age five. These investigators reported that the raters were able to identify the four basic emotions in the children's faces from infancy with the same accuracy as found in Izard's and Applebaum's studies.

Capatides and Bloom (1993), in an attempt to access real time appraisals of childhood facial emotional expression, videotaped children's facial responses during four 30 minute observation periods of one hundred and twenty children at ages 9, 13, 17 and 21 months old. Using the FACS system, the investigators were able to code 3,245 non-neutral affect expressions of which 96% were either positive or negative and which included all of the basic four emotions as well as the emotions of surprise and disgust. These investigations and similar others point to the fact that, at least in regards to facial expression, there is some evidence that suggests that from birth humans are having some type of emotional processor reaction.

These investigations and their results have been criticized as being too limited given that facial expression is considered by most researchers as only one factor out of many associated with the experience of an emotion. Further, critics of these studies, that purport that facial expression of emotion is evidence of an emotion, have identified that emotional expression can be affected by such factors as cultural display rules that inhibit emotional facial expression and/or the possibility that depending on the intensity of an emotion, it may not be expressed in the face (Fridlund, 1994). Also, as Camras et al. (1996) reported in their study of infant facial expression, some infants appear to make emotion faces that do not correlate to any situation or obvious event from which the facial expression would be expected. Regardless, one consensus among all the researchers appears to be that facial expression of emotion serves as a communicative event viewed as an adaptive response aimed at relating the infants needs or intentions.

Further investigation into the physiological processes of emotion in infants may, when combined with the facial expression research yield more solid evidence regarding

the origin of human emotion. In the last few years, investigators have begun to incorporate physiological, behavioral and subjective measures of emotions in the work being done with infants (Fox, 1991; Fox & Davidson, 1986; Heesacker & Bradley, 1997). These few investigations, which have assessed factors linked to emotion such as heart rate, respiration, muscle contraction, facial contraction, voice changes, brain activity and blood pressure, have provided further confirmation that, at least as an adaptive mechanism, human emotion is evident at birth. However, these investigations have been fraught with several design and theoretical problems that have yet to be resolved and therefore their results remain tentative.

The majority of the developmental researchers appear to have concluded that the origin and experience of emotion in humans begins at least in infancy and have primarily focused on the origin of verbal emotion expression in children. Numerous investigators have attempted to determine the age at which children begin to express the basic emotions. Wellman et al. (1995) examined the use of emotion terms in 120 normal children aged 2 to 5 by presenting short stories each of which contained one basic emotional component. They then individually interviewed each child as to their emotional reactions to the story. The investigators reported that by age 2 children verbally and freely identified the emotions happy, sad, anger and fear though found that children did not consistently present these emotions until age 4 which was previously reported by Barden, Zelko, Duncan and Masters (1980) in a similar study. The authors also noted that by age 5, the children's emotional vocabulary expanded beyond the basic four emotions to almost mastery of the 10 basic emotions of enjoyment, distress, anger, fear, surprise, interest, disgust, contempt, shame and guilt as identified by Izard (1971) in

his Discrete Emotions Theory. These investigators noted that as age progressed, so did the child's ability to discuss hypothetical emotions and present more complex emotional verbal responses. This result was also noted in Wolman, Lewis and King's (1971) investigation that studied 256 normal children in increasing ages from age 6 to 12. The investigators reported that as the age of the children increased so did the tendency to describe emotions as ideas or thoughts rather than in bodily sensation terms.

The next step in the establishment of a structure for the expression and development of the emotions comes from the pioneering work of Susan Harter (1977). Prompted by her clinical experiences with children, Harter (1977) observed that many of the 5 to 9 year old children referred to her due to emotional and/or school adjustment problems had difficulty expressing more than one emotion at a time or tended to express only emotions of the same valence (positive or negative) and generally a negative valence. Harter worked with these children in a play therapy situation and found that this result occurred especially when conflicting feelings were operating in the proposed problem play situation. Upon further investigation, she observed that there had been no attempt in the research literature to assess a child's emotional development beyond expression of the basic emotions and as well, found that there had been no attempt to link emotional and cognitive development in children. Harter thus set out to further map out children's emotional development including the development of the ability to express multiple emotions and to link such to co-developing cognitive structures.

Harter began a series of research investigations (Harter, 1977, 1982, 1983; Harter & Buddin, 1987) that involved querying normal and "disordered" children as to their singular and multiple emotional capabilities. Harter's initial investigation (1977)

assessed 10 normal children from ages 3 to 12. Her approach was to use an open ended interview format to gain a baseline as to the various levels of emotional development and expression. She interviewed the children as to their ability to (a) generate and express single emotions and then (b) inquired as to the child's understanding of how two feelings could go together. Harter reported that all her subjects could identify the basic set of emotions including happy, sad, mad and scared. She also established that there appeared to be a temporal sequence that culminated in multiple emotions being identified simultaneously. Harter found that the number of emotions identified from age 3 to 12 increased with age from a base of 4 to an upper limit of 18 emotions. She reported being able to reliably code 40 discrete emotions from the children's verbal reports. Harter found that those children in the 3 to 5 age range did not have a clear understanding of the emotions of ashamed, proud, nervous, or jealous. She reported that the oldest children in the age group 10 to 13 could demonstrate a comprehensive list of complex feelings including annoyed, disappointed, relieved, discouraged and anxious. Harter observed that her clinical or disordered subjects in all age groups had difficulty expressing opposite valence emotions whereas the normal children sample typically identified emotions of both a positive and negative valence. Harter observed that the mean age for sequential identification of emotions (a subject could feel one emotion followed by an opposite or same valence emotion) in normals was  $6\frac{1}{2}$  to  $7\frac{1}{2}$ . She also reported that the normal sample expressed simultaneity of multiple emotions by age 9. One problem with this study was that the children were prompted to express additional emotions and may have responded to please the experimenter thus providing emotions that may not be inherently operating.



Having established a baseline, Harter set out to further refine the development of emotion and multiple emotions capacity in children. In this regard, Harter and Buddin (1987) assessed 134 normal children from ages 5 to 12. The children were asked questions aimed at determining the various ages that a child could acknowledge more than one emotion that was present in self generated stories as well as whether the child could direct two or more opposing emotions to one object in the story. From the results of this investigation, Harter was able to organize the structure of a normal child's emotional development into several levels that culminated in the expression of multiple simultaneous emotions directed towards one object, a task she concluded to be the final task in achievement of emotional maturity.

Harter's results indicated that the developmental sequence could be refined as follows:

Level 1 (approximate age 5.23). The ability to express the ten basic emotions though denial of and no acknowledgement of multiple emotions.

Level 2 (approximate age 7.27). The acknowledgement of multiple simultaneous emotions of same valence directed toward one object.

Level 3 (approximate age 8.72). The acknowledgement of multiple simultaneous emotions of same valence directed towards more than one object.

Level 4 (approximate age 10.8). The acknowledgement of multiple simultaneous emotions of different valence directed toward different targets.

Level 5 (approximate age 11.34). The acknowledgement of multiple simultaneous emotions of different valence directed towards the same target.

Harter reported that the middle three levels were a period of indistinct developmental progress in which some children are precocious while others lag behind. She reported that younger children tended to select basic positive emotions rather than negative emotions as compared to older children that tended to choose negative and more complex emotions. Harter noted that in their explanations as to why multiple emotions seemed unfeasible, the younger children tended to have more all or nothing reasons and that those children from the clinical sample were more similar in this regard.

Since Harter's groundbreaking work there have been further research efforts to confirm her results and the conclusion that children are indeed slow to acknowledge multiple and contradictory emotions towards a single target.

Terwogt (1987) in his replication and attempt to improve on Harter's investigations (that were criticized due to their interview format and use of self-generated stories from memory) presented the 80, 7 and 12 year old children in his study with stories that contained both multiple emotions of opposite valance and mixed and same objects. Terwogt reported that Harter's developmental sequence held true. Terwogt (1990) was also interested in assessing the multiple emotion expression of children labeled as disordered. In this study, 40 disordered and normal children in two separate age groups (6 to 7 and 9 to 11) were given 12 short stories determined to evoke two different emotions simultaneously. Again, similar to what Harter found in her initial research and clinical investigations, Terwogt reported that the disordered children more often denied all emotions and/or endorsed all negative emotions across the stories as compared to the normal population sample. He also observed that the disordered children had a higher level of intensity rating of emotions and that they reported feeling threatened

when acknowledging their emotions. Terwogt hypothesized that failure to identify emotions appeared to be due to a lack of attention and/or the inability to reflect on one's own mental process. This effect has also been hypothesized to occur as a result of problems in an individual's cerebral frontal development (Kunst-Wilson & Zajonc, 1980).

LeDoux (1986) has noted that an individual's ability to acknowledge an emotion is directly related to proper functioning of subcortical structures such as the amygdala and hippocampus that have been found to have direct neural access to perception and which react without cognitive intervention that when severed leave the individual with an inability to express or acknowledge their emotional status. Also, LeDoux (1993) has hypothesized that children may initially experience a troubling emotion early on and repress it, which alters their neuro-cognitive development and which may hamper access to the emotion in later development. In addition, neuropsychological research (Goleman, 1995) has revealed that individuals that lack emotional expression were found to have repressed emotional responses that may have occurred in childhood but were inaccessible as an adult due to the evolution of the cortical structure. Furthermore, Damasio (1994) reported findings that suggest that the left prefrontal lobe of the brain was a center for good feeling and the right the center for negative emotion and that individuals who were inhibited in one or the other had difficulty providing the emotional counterpoint to the side that was impaired. Several problems plague these early explorative studies into emotional development including lack of agreement regarding definition of the constructs including discrete emotions versus physiological states and methods of measuring when an emotion is occurring versus plain physical arousal.

Somewhat contrary to Harter's research, Terwogt found that all of the children, disordered and normal, were capable of acknowledging the multiple emotion complement in the stories. However, the disordered children more often denied all emotions or identified multiple emotions that were negative. Relative to criticism of this type of study by emotions researchers, Terwogt reported that the subjects in the study reported emotions in addition to those being queried (the basic emotions of happy, sad, fear and anger).

In attempting to develop a theory as to the cause of the disordered subjects unique emotional expression, Terwogt (1990) observed that the younger aged subjects were inclined to ignore one of the emotions (of a multiple emotion nature) especially when they were of opposite valance and proposed that this could also be a defense against pain rather than an actual developmental deficit given that subjects classified as disordered ascribed a higher intensity or greater reaction to acknowledged emotions than did normal children. Terwogt (1989) hypothesized that greater awareness of emotions leads to increased self control and emotional restraint and that the disordered children's failure to identify emotions was due in part to a lack of concentration but primarily a result of an inability to reflect on their own mental processes (relative to Gurucharri & Selman's (1982) theory as well). In other words, the children lacked a capacity for introspection. He concluded also that children appear to focus more on their own mental state and acknowledge more aspects of it as they grow older.

Terwogt (1990) interviewed 96 institutionalized (INS) and non-institutionalized children in the age groups of 7, 11 and 15. Terwogt observed the same developmental shift in conception of emotions as in previous studies. He also observed that in the

younger subjects explanations of an emotion situation focused on the observable or concrete components while older subjects also considered the hidden mental and emotional aspects of the situation. Regardless of age, Terwogt reported that institutionalized subjects tended to be less attentive to their own emotions as well as others and denied that one could change an emotion. The INS subjects also viewed emotions overall as detrimental.

There are a number of problems with Terwogt's methodology. For instance, subjects were asked to verbally report on a choice of four emotions rather than complete a checklist or choose among greater emotion options that could have broadened their responses and possibly aided their concentration. Also, the children were asked to consider more emotions if initially they responded with only one which may have resulted in increased reporting or priming of the results and may account for why there was not much difference between groups regarding the number of multiple emotions reported. This is supported by Terwogt's report that some of the subjects reported alternative emotions to the four choices and, had the additional reports been recorded and/or a greater amount of choices been offered, their may have been greater separation between groups.

Further confirmation that children's development of multiple emotions occurs in early adolescence comes from Peng, Yang and Yang (1985). These authors examined the emotional reactions to situational and facial presentations presented to 8, 10, 14 and 20 year olds. The authors indicated that the 14 and 20 year olds did not differ in their ability to judge simple or complex emotions in the cues (complex being higher order emotions such as flattery, embarrassment and wryness), but that significant differences were found

between the 10 and 14 year olds in that the 10 year olds tended to identify simple or basic emotions and avoid reports in which opposite valence emotions were directed towards a single object.

Wintre and Vallance (1994) also performed a study in effort to confirm and expand on Harter's results. The authors assessed the effect that intensity and valence of emotion had on 80 normal children ranging in age from 4 to 8. The researchers concluded that Harter's developmental sequence held true and that responses by the children were further influenced by the intensity and valence of the emotions when presented with the 15 different affect laden situations of the study. Their results indicated that the higher the intensity of an emotion ascribed to a situation resulted in fewer overall emotions reported especially when the emotions were of the same valence. A confounding variable in this investigation was however the fact that the children were presented with a choice of only five emotions to describe the situations rather than 10, which may have limited the range of the children's responses.

Donaldson and Westerman, (1986) responding to criticism of Harter's methodology of having subjects recall or create stories that contained multiple emotion themes, assessed 40 children ages 4 to 11 by presenting hypothetical situations with multiple emotions themes and asked, in individual interview, what emotions the characters might be feeling and how the emotions might interact with and influence each other. The investigators results continued to support Harter's five-level theory.

Donaldson and Westerman (1986) were also interested in the construct of ambivalence and its relation to and effect on emotional development. In their study of 120 children from age 5 to 12, they reported that not until age 10 or 11 do children tend

to acknowledge ambivalence or coordinate feelings in an immediate situation along with past experiences and feelings towards an event or person. In other words, depending on an individual's emotional developmental level, a person will either respond with a temporal emotion or, a broader, multiple emotional response. Lack of developmental progression in this regard was hypothesized by the authors to be one cause of emotional problems resulting from an individual having difficulty coping by frequently expressing or experiencing only one emotion. Donaldson and Westerman proposed that these individuals may develop traits such as obsessive-compulsive or overuse defenses such as repression or denial that leaves the individual with the feeling he/she is protected by avoiding other salient emotions or situational cues.

Further attempts to assess emotional development and ambivalence have been performed by Harris (1983), Harris et al. (1981) and Arsenio and Kramer (1992). Harris (1983) assessed 74 normal 6-year-olds and 74 normal 10-year-olds regarding their emotional reactions to described events. He reported that the 6-year-olds had greater difficulty admitting and observing that a single situation could provoke an emotional conflict between a positive and negative emotion. Harris et al. (1981) also studied 72, 6 to 15-year-old normal children and who were questioned regarding their ability to identify, regulate and ascribe the effects of emotion on other processes. Harris found that the youngest subjects focused on publicly observable components of emotion while the older groups considered the hidden emotional and mental aspects of the situations.

Arsenio and Kramer (1992) assessed 48, 4 to 8-year-old normal children's conceptions of emotional consequences of moral transgressions (rule violations). He concluded that the 4-year-olds tended to respond with greater emotional intensity and

singularity as compared to the 8-year-olds when assessing victimization and the perceived rewards received from these situations. The authors also noted that the younger subjects also tended to assign less negative valence emotions to victims suggesting that younger subjects had difficulty accepting the concept of their ability to experience as well as assign conflicting emotions to a situation. These results begin to touch on the fact that there is a cognitive process that occurs or co-occurs with an individual's development and to this date only Harter and Buddin (1987) have attempted to combine the two into a concise theory.

Harter and Buddin (1987) have attempted to link emotional development with cognitive development. Using Piaget's (1967) model of childhood cognitive development, she proposed that the developmental progression to the point where a child can identify simultaneous multiple emotions co-occurred with the shift or progression from pre-operational (the child is unable to reason logically or deductively, judgements are dominated by perception only of events and objects and experiences are limited to attending to one perceptual dimension or attribute at a time to the exclusion of all others) to concrete operational thought and the solidification of logical operations.

Piaget (1967) described the pre-operational child as more egocentric and as having difficulty reasoning logically or using deduction. He observed that the pre-operational child can only attend to one event at a time. Conversely, Piaget noted that the concrete operational child has developed a logical system of cognitive and emotional concepts that define his/her affective spheres and has attained what Harter termed "affective conservation" and described as an ability to maintain a core emotional stance



that is not totally affected by outside events and which does not transform the entire emotional system.

A good example of the move from pre-operational to concrete operations is the classic "Beaker" experiment. Pre-operational children asked to judge which of two glasses (one standard size glass and one glass holding the same volume though taller and narrower) can hold more water, invariably choose the tall glass. The child relies only on perception and is able to focus on only one dimension at a time. Since Piaget's theorizing did not expand into the affective realm (given that he focused only on judgements of physical and mathematical nature), Harter expanded his theory to include ones emotional perception and dimensional ability as it co-occurs with ones cognitive development. In other words, if the pre-operational child has difficulty focusing on more than one perceptual dimension at a time, he/she may also have difficulty focusing on more than one emotional dimension at a time. Or, the child may vacillate over time between feeling all one emotion to all of another emotion entirely and/or in a sequential progression.

Harter has hypothesized that a further factor affecting a child's emotional development is the fact that emotions are of a less concrete nature than that of concrete physical elements such as a picture matrix or a beaker. She noted that emotions can be more vague and therefore it is likely a much more difficult developmental shift for the child to progress into the realm of multiple emotions and the understanding and expression of such. Hence, Harter noted on casual observation during her other research that even some concrete operation children were found to be struggling with the concept and process of multiple emotions.

In developing her cognitive-emotive theory of development, Harter also cited Fischer's (1989) Skill Acquisition Theory as a metaphor for a child's emotional development. Similar to Piaget, Fischer et al. (1993) theorized that a child is unable to organize his/her thinking into coordinated systems until approximately age 7 and that prior to this age, a child cannot coordinate various viewpoints into a single system that includes all aspects of an event without the aid of salient concrete clues. Harter also cited Holodynski (1996) who theorized that the progression of emotional expression and recognition follows the same ontogenetic progression as that of speech. Holodynski proposed that emotional expression of younger children is typically characterized as more intensive and impulsive than that of older children and adults. Holodynski offered that the reason for this was a result of a gradual reduction in emotional expression that is a result of cultural influence. He proposed that this process is similar to the interiorization of speech. As a child comes to develop a symbolic cognitive representation of his or her own emotional processes it allows the child to have inner emotional feelings without accompanying emotional expressions which he proposed is similar to having inner thoughts without verbalizing them.

Several neo-Piagetian theorists have challenged Harter's five-level theory and have proposed that the ability to integrate contradictory emotions may be evident at earlier stages. Case (1991) and Fisher, Shaver and Carnochan (1990) both examined a group of 4 to 6 year olds to determine whether they could induce the multiple emotional experience. Using a priming technique such as that proposed by Peng et al. (1992) to train young children to acknowledge mixed emotions, the authors found that such integration capacities were in evidence at these earlier ages. Even the 4-year-olds they

examined were reported to be capable of combining opposite categories in the single person object when asked to imitate a doll who acts both nice and mean to a second doll. Though this integration capacity may be dormant, it may be that it is not crucial until a later age to attain or be triggered until a later age as has been found in other neo-Piagetian efforts to attain cognitive competence at earlier ages (Gelman & Kremer, 1991). In answer to this, Peng et al. (1992) have proposed that it would be important to know whether young children's dichotomous thinking can be readily modified as it is with multiple emotions, especially in the case of those children who have presented with psychological or emotional complaints.

The remaining investigations into emotional development and multiple emotions in children have focused on remediation of the developmental lag in multiple emotion acquisition and expression. Harter's (1977) initial clinical concern with children's expression of multiple emotions led her and others to develop techniques for helping children to identify their multiple emotions both in effort to assist in emotional development as well as to stave off the development of a psychiatric disorder and/or delay in overall functioning.

Harter (1977) found that many of her patients suffered from generalizations in referring to themselves as "all dumb" or "bad." The technique she developed, aimed at assisting the child to label emotions and appreciate the fact that they can coexist, involves asking the child to draw a circle and place the letter of the emotion or letter of the self descriptive term within the circle. Gradually through queries, the child is led to include other emotion and self-descriptive labels within the circle. Harter reported that this technique was highly successful in helping improve her patient's level of functioning in

school and home as well as increasing their ability to tolerate conflicting emotions and ambivalence.

Several researchers took Harter's cue and developed their own methods for increasing children's emotional expression and expression of multiple emotions. These researchers have agreed that development of emotional expression is an essential acquisition skill and that the capacity to express multiple emotions is both an adaptive and a coping response for the individual.

Peng et al. (1992) recognized that a child's ability to acknowledge multiple, contradictory emotions is of both developmental and clinical importance. They acknowledged, as a result of Harter's and similar research results, that developmentally, children do not ordinarily acknowledge multiple emotions until late in middle childhood. Clinically, the researchers proposed that the failure to recognize multiple feelings towards self and others is a common presenting problem. As a result, the authors set out to assess how readily such a limitation can be corrected in children of different ages and by what process or technique could such be accomplished. In two separate studies, 41 and 75 normal children aged 4 to 7 were initially determined to present little understanding of multiple emotions as a result of a pre-test in which they were given a story and asked to choose from one of five emotions and multiple emotion options. Each group was then equally separated and one group given a short multiple emotion skills training session in which the subjects were asked to consider additional factors of the multiple emotion story relative to the emotion(s) not previously identified. The experimenter then combined the feelings and story and presented it to the child who was then asked to acknowledge the additional emotions. In the second study, the children were also asked to invent or

describe a situation that included multiple emotions. The investigators reported that the results of both studies indicated that regardless of the which study or training group, children aged 4 to 7 showed little benefit or increased multiple emotion expression from the training. However, 6 to 7 year old participants were reported to present considerable benefit and increased multiple emotion acknowledgement and expression as well as overall decreased distress. The investigators concluded that young school aged children fail to acknowledge multiple feelings because they engage in a cursory appraisal of the elements of an emotional situation but preschool children apparently are negatively affected by more basic limitations and do not benefit from training.

One problem with this study is that it is unknown whether the effects of the training were long lasting or whether the subjects were merely responding to the researcher's prompts. Also, the children were limited in their emotion response choices between happy and sad and degrees of such rather than being offered further emotional choices.

Cain and Patterson (1990) assessed disordered children as to their ability to acknowledge multiple contradictory emotions. In a study of 80 children aged 6 to 12, the authors trained these children by means of highlighting all the salient elements in a story containing multiple emotional elements. Relative to the similar cognitive skill, the authors proposed that disordered children might tend to occlude events that might trigger further emotions. The authors reported that children who pre-tested for a lack of multiple emotional expression could be trained to increase their multiple emotion capability which resulted in decreased complaints of distress and conflict.

Harter and Buddin (1987), in developing their five-level theory of emotional development presented a method to enhance children's ability to select multiple opposite valance emotions. Their technique was based on cognitive restructuring of the events that appeared to trigger intense emotions in 30 children aged 7 to 12 who were referred for school problems. The investigators reported that all of the children, following a pre-interview and queried as to their ability to express and experience multiple emotions, presented difficulty acknowledging the possibility of multiple emotions especially when asked about the conflicts or disturbing events in their life. Following three brief training sessions, the researchers reported that the majority of the children were able to point out the multiple emotion nature of stories presented to them as well as report decreased conflict and distress in their situations at school and home.

In attempting to determine situational or environmental factors that might inhibit a child's multiple emotion development; Camras, Sachs-Alter and Ribordy (1996) assessed how maltreatment might affect a child's emotional life. The researchers assessed 20 abused (identified by assignment to treatment by family services agencies and who had targeted the children as maltreated) and 20 non-abused children aged 3 to 7. The authors found that in interview with the children's mothers that those mothers who were less emotionally expressive than their children were less able to identify multiple emotions when asked to rate such based on pictures and situations presented to them. The investigators then developed a system aimed first at increasing the child's recognition of facial expression of emotion by training them with pictures such as the IFEEL series. The authors then trained the children to associate certain facial expressions with general situations that coordinated with both multiple and singular emotions. The investigators

concluded that those subjects with the emotion skills training reported increased ability to identify opposite valence emotions as well as feeling less threat and greater ease at adjusting to their home and/or placement situation.

In a reversal of the above procedure, Cain and Patterson (1990) wrote a self-help book to help children become more adept at identifying, understanding and acknowledging their ambivalent and multiple emotions. The authors in this book start by presenting situations known to elicit ambivalent or multiple feelings such as the first day of school, birth of a sibling or move to a new home. The children are then asked to engage with the reader in describing what feelings the subjects might experience including opposite valence emotions. Though not based on an empirical study, the authors report testimonials that claim to have advanced children's general level of emotional development. The book tends to focus on counter valence singular emotions and lacks in giving an overview of the range of emotions a child could experience as well as lacking attention to developmental levels of the children it is geared towards which may preclude positive results in younger children.

Donaldson and Westerman (1986) examined the emotional experience of 7 to 11 year olds and found that all experienced ambivalent feelings but most did not identify multiple emotions and often denied the possibility of such. The authors developed a method to address such developmental delays relative to the child's ability to experience and tolerate ambivalence. The treatment consisted of teaching the children to (a) recognize that two contradictory emotions can co-exist towards the same object, (b) that feelings can interact/modify one another, (c) that one can integrate temporary and enduring emotions and (d) to develop a hierarchy of old feelings to choose from. The

investigators reported that children who received the training were more adept at resolving ambivalence as well as tolerating such as a normal part of their existence.

Hyson (1994) has also taken the approach of training children to acknowledge and express multiple emotions by the use of situational examples. Her technique uses classroom anecdotes to help children identified as "troubled" to identify both ambivalent and multiple emotions in various situations. Hyson reports that in a sample of 20 troubled children age eight to eleven, that a significant amount presented greater ability in identifying the multiple emotional component of situations. She reported that the subjects also appeared to have less classroom conflicts and improved their overall scholastic achievement.

Parke (1993) has gone one step farther than the previous authors in devising a technique to assist children in their emotional development. In addition to direct emotion identification and situational assessment of emotions, Parke further assists her children by having them engage in role-played social interactions similar to the situations they have learned. She reports that the increased step appears to help children also gain a greater amount of control as well as understanding of their emotions.

In attempting to attend to the problem of emotional expression at an earlier age, two separate studies concluded that normal children between the ages of 2 to 5 could be diverted away from distress and increase positive emotional expression by increasing the amount of engagement by the caregiver. In one study, Grolnick, Bridges and Connell (1996) examined expressions of negative emotion in 37, 2-year-old normal children in which delay and separation were induced to measure distress. Children that received increased active engagement tended to cope better and regulate their negative emotions



than those who received no engagement. Hestenes, Kontos and Bryan (1993) examined 60, 3 to 5 year old children's emotional expression in separate instances in which low level to high level of active engagement was varied. They reported that children who were administered the high level of active engagement expressed a significantly higher number of positive emotions than the low active engagement group. Though these studies did not directly address the multiple emotion ability of the children as it was assumed to be premature in their development, it does provide evidence of another technique which spurred increased emotional expression which has yet to be applied to older children.

#### Emotions Research

An ongoing and major dispute in the area of emotions research has been whether the experience of an emotion occurs following a primary bodily (James, 1890) (emotions are merely the sensation of bodily changes) versus a primary cognitive (Arnold, 1970; Schacter-Singer, 1962) reaction. In other words, what comes first, an emotion or a cognition? As noted in the developmental research section of this study, several researchers have taken on the task of answering this question and the majority of these investigations have attempted to answer the problem by examining infant facial expression. As a result of criticism of this approach and the obvious fact that the emotion process is a complex process that involves much more than facial expression, various researchers have attempted to provide additional proof that the emotion process occurs independent of cognition and may in fact precede cognition.

To support his belief of the primacy of emotion, Izard (1992) noted that emotions are basic structures, in that they have innate neural substrates, innate and universal expressions and unique feeling and motivational states. Izard and Malatesta (1987) cited several studies in which an emotion was reported to occur without cognitive activity. These included, Duclos, Laird, Schneider and Sexter (1989), in which an emotion was induced by having subjects manipulate their facial expression; Zajonc, Murphy and Inglehart (1989), in which an emotions were induced by changing the temperature of the cerebral blood; LeDoux's (1987) investigation that reported inducing various emotions by activating subcortical structures that were independent of the neo-cortex and thereby any type of cognition requiring cortical processing or integration and finally Izard and Malatesta (1987), which induced an emotion by imparting unanticipated pain.

In spite of such assertions, it appears that this argument has for the most part been abandoned and explained by the approach taken by most researchers that views the development of emotion and cognition as a co-occurring process in which both structures depend and affect the development of the other. According to Werner (1948, Werner & Kaplan, 1957) the whole process of emotional and cognitive development can best be viewed as an orthogenic progression in which the system's inner complexity increases with time as a consequence of ongoing assimilation of experience. Several theorists have urged moving on from this issue and have conceded that affect and cognition can both operate separately (Leventhal & Sherer, 1987) and co-occur (Neisser (1979, 1983). Lazarus (1991a) in a review of the literature concluded that emotion and cognition exist

in a complex state of cause and effect of which neither seem to maintain primacy but which occur independently and can also give rise to and influence the other.

Mohr, Beutler, Engle and Shoham-Salomon (1990) urged that any approach that focuses on either cognition or affect exclusively, or that attempts to separate feeling and thinking, is dysfunctional in much the same way that we might view a patient who refused to consider that his/her feelings might co-occur with his/her thoughts and vice versa. These theories have yet to include the construct of multiple emotions and consider that at the point of assessment of an individual's emotional presentation, results might indicate that one emotion triggered a bodily or felt reaction, while another produced a cognitive reaction and so forth. Without assessing for the multiple emotions construct as operating in a situation, any conclusions drawn as to the origin of the emotion or thought may therefore be misleading or inaccurate.

Few theorists have addressed the construct of multiple emotions directly. Oatley and Johnson-Laird (1987) addressed the construct in forwarding their view that it does not exist and developed their cognitive theory of emotion which posits that there are only five basic emotions and that mixed or multiple simultaneous or parallel emotions are merely the result of the conjunction of the five separate disjunctive or discrete emotions. Oatley and Johnson-Laird were however, unable to provide empirical evidence of their theory and Jones and Martin (1992) set out to disprove such. These investigators performed two separate experiments to determine whether 24 undergraduates (in each experiment) would be more likely to identify (by choosing know, don't know, unsure) disjunctive (words joined together but dissimilar) or conjunctive (words joined in a logical manner) emotion words and then select from either a disjunctive or conjunctive

definition of the word. In both sections, the participants chose at the 90% level conjunctive words and definitions and in only one case did they choose a disjunctive word (flush). Jones and Martin concluded that these results provide evidence that the multiple emotion experience is more common and familiar. A problem with this study is that except for one word, encourage, the choice and use of the 38 conjunctive and disjunctive emotions words selected from Oatley and Johnson-Laird's list were all negative and their associated definitions negative which may not entirely tease out whether the words triggered a conjunctive association or rather the subjects negative response to them.

In developing his theory of emotion, Ekman (1971 ) postulated that the expression of a singular emotion is a fixed action pattern that can be altered by learning and relegated by cultural display rules. Consequently, some emotions may not always be in evidence, at least facially, depending on the situation and the background of the subject being examined. Ekman (1971) postulated that each emotion had its own distinct facial behavior. In addition, he reported that these discrete emotions could be found across cultures, races and various ethnic groups, which led to the discovery of a wide array of facial behaviors. As a result, Ekman found it necessary to identify mixtures of primary emotions that caused a facial emotional pattern or blend. He maintained that each blend consisted of discrete emotions and that each could be identified in a separate sector of the face and developed a tool, the Facial Action Coding System (FACS) to assess and categorize the various emotions including emotional blends. Ekman proposed situations where the emotional blend might occur for instance, a lottery winner might express both surprise and joy. Ekman and Freisen (1976) concluded that facial expression of just one

discrete emotion is rare and that blends of two or more emotions either in quick succession or simultaneously appeared to be more common.

Ekman's work regarding cross-cultural facial expression led him to develop the construct of cultural display rules that inhibit facial expression of an emotion. He found in numerous studies assessing facial emotional expression across cultures and using the FACS that in certain groups or cultures various emotions were forbidden from expression and that one could be ostracized for exhibiting such. As a result, Ekman concluded that individuals somehow learned to restrict their facial response of an emotion though not the experience of it from within. Ekman did not however, address the possibility that multiple emotions themselves may inhibit facial expression.

He did however address the belief that multiple emotions or blended emotions were likely a more common experience. Thus, Ekman, Freisen, Wallace, O'Sullivan and Chan (1987) reported, in a sample of 10 different cultures, subjects who when given photo's of blended facial expressions were able to agree in identifying both primary and secondary emotions in their assessments of the photos. Since these were still photos, it can be inferred that the subjects believed the person in the photo was experiencing a number of emotions at one distinct time. However, confounding the experiment was the fact that subjects were told that they would be seeing blended faces (described as more than one emotion) which may have influenced their reports given they were looking for more than one, and/or as an effort to accommodate the researcher. Still, this evidence appears to provide evidence in the direction of multiple emotions and also of using facial expression as one method to measure such. Ekman's study was predated by the work of Nummenmaa (1964) who also reported in a similar study that subjects could select a

blend of facial emotions and have greater rater agreement than those that were asked to evaluate a singular emotion face. Ekman, Freisen and Ellsworth (1986) noted in a theoretical paper that most investigators have failed to take into account the occurrence of emotional blends in their studies.

Of all the theorists in this area, it is likely Carroll Izard's work (1971, 1972) that allows the most inference and empirical evidence regarding the multiple emotions construct. In the development of his theory of discrete emotions, Izard, much like Ekman, found it necessary to account for what he found to be blends or patterns of emotions that occurred in his research subjects. Izard postulated that such patterns or blends occurred simultaneously and believed that such could be measured both facially as well as be reported subjectively. In the development of his Differential Emotions Scale (1972), Izard noted that the scale was effective in measuring not only individual and discrete emotions but patterns or combinations of emotions as well.

However, relative to the present investigation, Izard did not directly investigate these patterns further to determine the amount (number of emotions reported), type (discrete name or positive/negative) or subject makeup. However, in establishing the DES scale's convergent validity, Izard developed the D.E.S.+D (a measure of depression) and the D.E.S. + A (a measure of anxiety) and claimed the results allowed the identification of certain clinical populations (e.g. depressive and anxious) and their multiple emotion experience. Izard was able to group these subjects by their emotion mean scores under such clinical headings as neurotic, affective, personality and adjustment disorders as compared to a "normal" sample. However, these subjects were not rated as to the number of emotions reported but rather the type and severity level as

one might find using the Beck Depression Inventory. These results do suggest some evidence that a mental health factor may be at play regarding an individual's multiple emotion experience and as a result, should allow for success in obtaining both a general measure of multiple emotions as well as a rating for a "disordered" sample.

A number of studies have been conducted to assess the accuracy of laboratory mood induction methods (Pittman & Pittman 1979; Roth & Kuball 1975; Strickland et al., 1975 and Zuckerman et al., 1964). These studies assessed emotions by the use of self-report mood inventories and in all the results, it was noted that subjects reported the experience of more than one emotion other than just the target emotion being examined. These studies, as performed on the general population, were not concerned with the discreteness of the emotions assessed and generally included broader labels such as depression rather than singular or discrete emotion terms such as fear or anger. Also, the scales used, and primarily the MAACL (Zuckerman et al., 1964), do not allow one to group the adjectives into categories (as does the DES) and generally, as a result of the large number of items (e.g. 125), tend to encourage the patient to over-respond thus creating an inflated score (e.g. 30 discrete emotions reported).

Folkman and Lazarus (1985) and Smith and Ellesworth (1987) both studied the effect of the college exam situation on emotional experience and expression. The former was chiefly concerned with coping strategies and the latter was concerned with assessing cognitive appraisals but both, as a by-product, reported evidence of multiple emotions and the fact that the construct was posed as a confounding variable in the research. In addition, the emotion words most commonly reported on the self-report inventories used in this situation (e.g. MAAC) were threat and challenge. As these emotions are regarded

as secondary or component emotions (they are aspects that make up a complete emotion, e.g. threat leads to fear), they do not provide direct evidence of multiple discrete emotions but certainly suggest that more than one emotion may have been operating in what others would consider a singular emotional situation.

The durability of the multiple emotions experience was pointed out by the researchers from the results gained by giving the subjects the adjective checklists before and after the exams. It was hypothesized by the authors that the threat report would decrease a week after the exam but instead it was found to continue, though less intensely, as subjects later reported they were then fearful regarding their performance and outcome on the test. The authors did not record or consider the data in terms of multiple emotions and therefore it is unknown what further emotions, if any, were operating in these subjects. Regardless, because the studies used the broader adjective checklists, it would not have been possible to gain an accurate profile because of the large number of items and inability to group them as could have been achieved with a scale such as the discrete emotions scale.

Polivy (1981) conducted a study to investigate the effects of various emotions on behaviors using mood-induction techniques such as a time delay (anger), elation and threat. In four separate experiments with a sample of 91 undergraduate subjects, Polivy reported that attempting to induce one particular emotion seemed to result in the arousal of several emotions and that inducing one particular discrete emotion actually gave rise to another or multiple emotion(s). She also reported evidence that naturally arising emotions occurred in clusters rather than singularly. Izard (1972), in the development of the Differential Emotions Scale (DES), attempted to induce single



emotions by having subjects see short movies designed to contain one emotion. Izard concluded that regardless of the subject and corresponding emotion, subjects tended to more often report several emotions rather than discrete emotion targeted.

### Clinical Research

King and Emmons (1990) highlighted the overall dilemma for the study of emotions and clinical applications of such by pointing out the general societal contradiction that views emotional expression as both beneficial (communication of emotion to avoid conflict) and uncivilized (failure to control oneself). They noted that the identification of ones own feelings is critically important for psychotherapy, which relies on conscious access to feelings. Safran (1993) noted that there has been a failure to treat the topic of emotion in any kind of systematic fashion or to develop a theoretical framework that would integrate insights from different theoretical traditions.

Relative to the present investigation that proposes that failure to develop the ability to experience multiple simultaneous emotions directed towards the same object, Raulin (1984), in studying ambivalence in mental health settings, developed the Intense Ambivalence Scale to assess for intense ambivalence as a personality trait that may lead to or leave individuals prone to psychosis or schizophrenia. Raulin viewed intense ambivalence as an emotional state in which two opposing emotions could not be tolerated and created severe emotional distress for the individual versus general ambivalence which is viewed as a normal and expected, sometimes daily, experience that most individuals can face, recognize and resolve. Raulin validated the scale on college students whom he found to score in the normal and high ranges on ambivalence. Raulin

then administered the scale to psychiatric populations ranging from hospitalized schizophrenics to a normal control group. His results suggest a significant difference between psychiatric and normal populations with the former always receiving higher scores on the scale. Raulin concluded that singular, discrete and polar emotions may be a sign of intense ambivalence and relative severe emotional distress. Raulin's research was criticized because the scale was normed on only a college student sample which may be problematic given the subjects ages and relative levels of development versus gaining a sample from the population at large. Regardless of the norming problem, the results do suggest a trend in support of this paper's hypothesis, that the greater degree of severity of mental illness and lower level of functioning, the more likely ones emotional report will be impoverished.

Further research results lend support to the need to assess and account for an individual's emotional development and its relation to overall functioning.

Sincoff (1992) performed an experiment to investigate various types of coping or defense mechanisms relative to their impact on the expression of ambivalence. She assessed 75 male and female ninth graders, 50 twelfth graders and 80 undergraduate students as to their type and frequency of defense mechanism reported. For those subjects that used repression in all age groups, all reported low level of mixed feelings as well as less certainty regarding their feelings and low reports of overall ambivalence suggesting that these subjects suppressed feelings that created conflict.

Kalliopuska (1985) studied the relationship between disturbances in the appraisals of emotion provided by parents about themselves and each other and their children's ability to recognize emotional expressions. This study focused on six to six and a half-

year-old female children. Kalliopuska concluded that parents who were weak in their expression/recognition of emotions as assessed by interview, correlated with their child's relatively lower recognition of emotional expressions as assessed by the children's judgement of pictures of man/women facial expressions.

Camras, Sullivan and Michel (1993a) and Camras, Holland and Patterson (1993b) attempted to determine whether emotional abuse of children resulted in impairment in a child's ability to pose and recognize emotions. In two separate studies of 20 maltreated and 20 non-maltreated children ranging in age from 3 to 7, children and mothers were observed and videotaped in laboratory and home play sessions and their facial behavior was coded. The children were also given an emotional expression recognition task involving identifying feelings contained in pictures presented to them. Data analysis concluded that both maltreatment status and the mothers facial behavior were predictors of children's emotional recognition scores. They concluded that abused children and their mothers posed less recognizable expressions than non-abused children and mothers. Also abused children were less accurate in recognizing emotional expressions. Mothers posing and recognition scores were positively correlated with their children's scores overall.

The inability to recognize emotional expression has been linked to behavioral disorders in children. Mackenberg and Bommert (1993) studied 35 children in the age range of 6 to 21, half of which suffered from minimal cerebral dysfunction (MCD). Subjects were asked to report emotions associated with various facial expressions (photos and drawings). The investigators reported that those individuals with MCD which was hypothesized to hamper their cognitive skills presented a greater amount of behavioral dysfunction. It was also hypothesized that one possible reason for lack of emotional

experience or expression could be such types of cerebral impairment or lack of development that may be masked by other factors or be interpreted as a symptom of another disorder (LP). However, those studies in which emotional expression and cognitive impairment have been assessed have suffered from design elements that have surfaced in general emotions research including poor definition of the construct and lack of standardized measures to assess such.

Several clinician/researchers, have begun to incorporate emotion theory and research into their theories and clinical techniques. Daldrup, Engle, Holiman and Beutler (1994) hypothesized that blocked or constricted affect or emotional expression appeared to hamper their patient's progress in therapy. They developed a therapy technique called Focused Expressive Psychotherapy (FEP) which is aimed at intensification and resolution of blocked affect or constricted emotion and which involves intense focus on each discrete emotion and increasing the patients ability to accurately assess others emotions by facial expression as well as situational examples. These researchers reported that, following initial investigations assessing their technique, subjects were found to have developed increased ability to express emotions of opposite valance as well as decreased psychiatric complaints.

Several researchers have theorized about the role that proper emotional expression plays in good mental health. In developing his Relationship Enhancement Theory and Technique for treating couples, Guernsey, Coufal and Vogelsong, (1983) noted that the chief goal is to find and achieve a better understanding of emotions (of the self and others). Holder (1975) noted that the chief goal of psychotherapy is the recognition, acceptance and resolution of ambivalent conflicts. She further notes that it is important to

distinguish between those people capable of tolerating ambivalence and those that find only pathological solutions to dealing with mixed feelings.

Safran and Greenberg have theorized that full awareness of emotions enhances adaptive functioning and that incomplete or distorted emotional processing appears to result in sub-optimal functioning of the overall system (Safran, 1984; Safran & Greenberg, 1988; Safran, Vallis, Segal & Shaw; 1986). They note that individuals appear to fail to learn to process emotional experiences properly because it conflicts with other goals. This approach however, they point out, will result in poor access to information that may be relevant to optimal functioning and may ultimately present as a clinical problem.

Foa and Kozak (1991), in the development of their treatment for PTSD, noted that incomplete emotional processing and especially processing of negative emotions predominates in clinical practice.

Those in the subspecialty of Cognitive Therapy, which has formally garnered a reputation for being too intellectually focused (Carpenter & Mahoney, 1980; Safran 1984, Westen, 1994), have also highlighted the need to consider the emotional capabilities and status of their patients.

Jeffery Young (1989), in the development of his technique for Cognitive Therapy for Personality Disorders, recognized the need to facilitate emotional expression in effort to help individuals restructure their cognitive schema's. Young proposed two techniques to facilitate emotional expression, (a) the creation of imaginary dialogues that would provoke an emotion and (b) emotional catharsis aimed at uncovering repressed emotions. Judith Beck (1995) in developing her handbook for the beginning study of Cognitive

Therapy identified that some patients may have difficulty labeling and expressing emotions. She noted that some patients display an impoverished vocabulary of emotions and/or some intellectually understand emotion concepts but have difficulty labeling their own specific emotions. She proposed two techniques for the remediation of the problem including, a) identifying for the patient the emotion that might be at play in the presented thought or situation and b) reviewing a list of the primary negative emotions to facilitate the proper labeling of the emotions. Newman (1991) noted in the presentation of 2 case examples that Cognitive Therapy (CT) has become more focused on the appropriate experience of affect and that a common goal in CT now also includes emotional enhancement. Newman's case illustrations consisted of examples whereby either negative or positive affect was enhanced by the use of invivo or role play techniques where the overall goal was the increase in the number of emotions reported. These efforts have failed to account for the construct of multiple emotions which may be operating and at play in some of these individuals.

In recent years, the construct of Emotional Intelligence has gained attention and interest. Emotional intelligence has been described as the ability to monitor one's own and other's feelings and emotions, to discriminate among them and to use this information to guide one's thinking and action (Mayer & Salovey, 1997). Salovey (1989) also described emotional intelligence as a set of skills hypothesized to contribute to the accurate appraisal and expression of emotions, the effective regulation of emotion and the use of feelings to motivate, plan and achieve. Ciarrochi, Chan and Caputi (2000) critically evaluated the construct of Emotional Intelligence (EI) and developed a scale, the Multi-factor Emotional Intelligence Scale (MEIS) (Ciarrochi et al., in press), to

measure such. The authors administered the scale to an undergraduate population with a mean age of 24.5. The authors also tested the scale using mood induction methods to assess whether students with high EI scores were better at managing their moods and preventing their moods from biasing their judgements. Analyses revealed that EI was highly correlated with empathy and life satisfaction as well as ones ability to manage their moods but did not prevent moods from biasing judgements.

Another clinical area in which ones emotional development affects the clinical situation is in dealing with the construct of ambivalence. Numerous theories and techniques have addressed the construct of ambivalence both as a necessary ingredient in change and mental health and as a problematic variable associated with emotional conflict. Ambivalence has been described as the result of overlapping approach-avoidance tendencies. Both Bleuler (1937) and Freud (1930) identified the problem of ambivalence in their patients and both agreed that ambivalence operates on a continuum from healthy to pathological the latter of which is viewed as a love-hate conflict directed toward an object or representation of an object. Klein (1964) viewed ambivalence as a failure to tolerate opposing emotions which results in disintegration of the ego and lack of fusion of the self. Kernberg (1976, 1984) found that Borderline personalities most often reported severe splitting and lack of ability to integrate opposite valence emotions directed towards an object and the assignment of one emotion to one object (e.g. a negative emotion directed towards the patients father) and an opposing valence emotion to another object (positive emotion directed towards the mother) in an effort to cope with the ambivalence. Kernberg (1976) viewed the Borderlines ambivalent conflict as a failure to integrate and coherently view the emotions. He reported that the goal in

treatment of Borderlines is to develop their ability to recognize that opposite valence emotions can be directed towards the same object and that the ability to do so is seen as the result of a successful and healthy emotional development.

Saltzman (1968) expanded on the problem of ambivalence as applied to Obsessive Compulsive Personality Disorder (OCPD). He proposed that OCPD patients seemed to view ambivalence as a weakness which is dispelled by demanding black or white or unipolar responses. He noted that compulsive rituals appeared to prevent disordered children he observed from experiencing disturbing mixed feelings. Saltzman concluded that OCPD was a defense against mixed feelings. Holder (1975) noted that individuals will use repression, denial and splitting to avoid ambivalence. Blatt (1983) investigated the process and purpose of ambivalence and concluded that people normally react with mixed feelings to major life events and social movements that occur over a lifetime (gender roles, expectations, career choices, affiliation versus achievement, dependency versus self definition) and viewed these moments as societies mixed messages. Blatt & Schickman (1983) also proposed that adults with infantile narcissistic personalities resist internalizing their negative emotions which creates distress and confusion.

Sincoff (1990) proposed that ambivalence develops as a normal part of childhood. She hypothesized that a persons ability to express and resolve ambivalence is the result of the successful integration of ones decision-making ability relative to the persons successful cognitive and emotional development. Sincoff noted that the reluctance to admit to ambivalence is an effort to avoid loss and/or for fear of rejection in effort to maintain connection with someone or something as well as an inability to experience



these feelings as a result of a lack of emotional development. Sincoff proposed that a high level of ambivalence can lead to subjective distress and the inability to make a decision.

Frenkle and Brunswick (1954) proposed that throughout ones development, complex psychological events and life situations create ambiguity that in the healthy and properly developed individual yields mixed feelings and approach-avoidance behaviors. They proposed that individuals who were less emotionally developed would likely have greater difficulty tolerating the ambiguity and resist acknowledging ambivalence as it confuses simple, clear and familiar emotions and thoughts. The authors felt that viewing an individual from this developmental stance would be helpful in conceptualizing individual differences among adults displaying various levels of cognitive and emotional efficiency and functioning. Holder (1975) proposed that the goal of working with adult individuals who suffered from ambivalent conflicts was to have them accept and identify their repressed ambivalent feelings.

Blatt (1983) identified that his patients who suffered from infantile narcissistic personalities were similar to children in their resisting internalized negative emotions and that these individuals tended to believe that distressful emotions were more often caused by environmental or external factors or the result of others failure to meet their needs.

The relation between emotional expression and psychopathology has been explored by several researchers. For instance, Beutler, Engle, Oro-Beutler & Daldrup, (1986) hypothesized that the inability to express intense affect was a common link between depression and pain and that difficulty expressing anger and difficulty controlling intense emotions are predisposing factors linked to these two conditions.

These authors proposed that chronic pain and depression may be disturbances or failures to process intensely emotional information which results in disturbances in both immune system functioning and conflicted interpersonal relationships. In contrast, Brody (1985) theorized that psychopathology in adults was due to an individual's frequent and unremitting experience of inappropriate and intense emotions.

Corbishley, Hendrickson, Beutler and Engle (1990) assessed 16 female depressed patients with or without a chronic pain (CP) disorder. They reported that CP patients reported emotional expression as dangerous and denied their own emotional needs. CP subjects also expressed a smaller range of affect. The researchers recommended Cognitive therapy (CT), assertiveness training, and group therapy to address emotional expression.

Finally, Kring and Bachorowski (1999) reviewed the literature regarding the nature of emotion in schizophrenia. They concluded that compared with non-patients, schizophrenia patients exhibit very few outward displays of emotion though report strong emotions in response to emotional material and fail to report strong pleasant emotions in daily living.

## SUMMARY

This chapter provided an in depth review of the construct of multiple emotions as it has been examined by researchers from the developmental, emotions and clinical areas of psychology. In the developmental section, empirical evidence was presented that traced the origin and development of emotion in humans as well as the developmental sequence that occurs in children regarding their acquisition of the ability to experience

and express multiple simultaneous emotions towards one object. Further empirical evidence was provided that displayed how a child's failure to advance through the multiple emotions sequence appears to result in emotional distress and conflicts for some children. Finally, the developmental section presented empirical evidence that displayed that the multiple emotions deficit in children could be remediated and addressed through the use of various therapeutic techniques.

The emotions research section of this chapter presented an overview of the construct of multiple emotions as addressed and viewed by the chief researchers in this area. This section presented empirical evidence as to the effect that failure to account for the multiple emotions construct may have on research investigations into emotion as well as substantiating that the experience of multiple emotions occurs more commonly than the experience of one emotion at a time.

Finally, this chapter addressed how the construct of emotional expression has been addressed in clinical applications and provided empirical evidence that supports the notion that failure to express emotions, if not multiple emotions, appears to lead to not only emotional distress and disorders but a variety of physical and behavioral complications as well.

## Chapter III

### METHODOLOGY

#### Overview

Given that little data exists regarding adults and their multiple emotion experience, the method employed in this study followed a survey research design aimed at acquiring baseline data to broaden the knowledge base regarding multiple emotions. This design allowed for a comparison of outcomes on the criterion variable (Differential Emotions Scale) between levels of the predictor variable (Global Assessment Scale). Specifically, the predictor variable was the subjects overall rating of combined psychological, social and occupational functioning as assessed along a scale from 0 (or profound impairment in overall functioning in these areas) to 100 or normal, healthy overall functioning. The criterion variable was the overall score or total number of emotions reported on the Differential Emotions Scale (Izard, 1972).

This chapter describes the participants in the study followed by a presentation and description of the instrumentation to be used namely, the Global Assessment Scale and the Differential Emotions scale. Included in the instrumentation section is the rationale for the choice of each scale along with the scales corresponding psychometric properties. The full procedure of the investigation including field procedures is then outlined. This section then moves on to the sections, Data Collection, Scoring and Recording and Data Processing and Analyses which addresses specifically how the data and results collected were handled and processed.

### Participants

This investigation was conducted according to the guidelines provided by the American Psychological Association's Ethical Principles of Psychologists and Code of Conduct (APA, 1992) with regard to treatment of participants in research studies. Therefore, those who participated in the study did so on a voluntary basis and with informed consent. Participants for the non-clinical sample were pooled by the experimenter randomly from a general population sample of adult continuing education students at the University of Pennsylvania. These subjects received a brief introduction to the study prior to the start of their classes. The study was described as an investigation aimed at assessing emotions. Subjects wishing to participate were asked to stay after class and advised that participation would take only a few minutes of their time. The participants were also assured of their confidentiality and advised to follow the directions as indicated on the DES instruction form. As these participants were assumed to be in the high range of overall functioning, no GAS appraisal was conducted.

Participants pooled for the clinical sample group were approached upon presentation for intake for psychological services, or by their current therapist if already receiving treatment and asked if they would be willing to participate in a research project being conducted at their specific site and elsewhere. Participants were excluded from the study if treatment has been ongoing for greater than 1 month or four sessions to rule out any treatment effect that might influence the DES ratings. These individuals were then given the administrative forms followed by the DES and asked to follow the instructions provided on the scale.

Participants for the clinical sample were pooled from outpatient psychotherapy treatment centers namely, the Philadelphia Mental Health Center and The Center for Psychotherapy Research at the University of Pennsylvania. Since participants were pooled from outpatient facilities it was determined that GAS scores would not fall below 31 or relative to a complaint of profound impairment in functioning in all areas, if not inability to function. Endicott, Spitzer, Fleiss and Cohen, (1976) confirmed that most individuals seen in outpatient centers generally have GAS scores that fall between 31 and 71. Conversely, it was proposed that no clinical subjects would present with GAS scores of 71 or higher on the GAS, which is indicative of transient or common everyday problems but good general mental health. This left the clinical group to be split between severe and moderate impairment in functioning levels and resulted in three overall groups or levels of the predictor variable namely, non-clinical or normal, moderate and severe functioning. Using appropriate statistical power charts for psychological research, it was determined that for each level, 75 subjects would be adequate to achieve power in the study, which resulted in a total of 225 overall participants.

#### Clinician Participants

Each clinician or intake worker agreeing to participate in the study was assessed by the experimenter as to whether or not that individual had the appropriate clinical training, skills and knowledge required for proper use of the GAS Scale. The selected clinicians included two licensed social workers, three licensed psychologists and one unlicensed psychologist who met or exceeded the following criteria:

(a) Master's degree in general or clinical psychology including clinical practicum and/or internship.

(b) Greater than 1000 hours of individual clinical supervision with a licensed psychologist and at least one year of practice and familiarity with the GAS.

### Instrumentation

#### Global Assessment Scale (GAS)

As this research sought to elicit data regarding the emotional experience of individuals across a continuum from normal or healthy to impaired regarding their level of everyday functioning, it was necessary to use a scale that would provide a global measure of functioning rather than one that would have obtained more specific diagnostic information. Scales such as the SCL-90 (Morrow, Chiarello & Derogatis, 1978) were ruled out based not only on validity/reliability problems but also because they could be misleading in terms of severity if overall level of functioning were not considered. Indeed, no other scale considered seemed more suited than the GAS (Endicott, Spitzer, Fleiss & Cohen, 1976) which is well known, easy to administer and touted as a valid tool for clinical and research use as a global measure of mental health and overall functioning (Cohen, Kim & Subkoviak, 1990).

The GAS provides a single, subjective rating on a continuum from severe to normal with the hypothetically lowest functioning individual receiving a score of 1 to the highest functioning individual with a score of 100. Subscales are grouped in tens (e.g. 1 - 10) and rated based on the subject's symptoms, behaviors, characteristics and reported

level of functioning. The rater selects the subgroup that the subject best fits based on the individual's presentation and overview of their abilities and limits in functioning.

Reliability. Interrater correlations of the GAS scores are reported in five studies performed during the development of the scale (Endicott et al., 1976). In all of these studies, each rater observed and scored the same sample of a subject's behavior. The reported correlations ranged from .61 to .91 the lower of which have been explained by small sample size. Two follow-up studies have been conducted to assess the reliability of the GAS. Kuhlman, Bernstein, Kloss & Sincaban (1991) compared intake and discharge scores on the GAS for patients admitted for psychiatric hospital stays. The investigators reported that interrater correlations of .89 were obtained. Jones, Tarnof and Martin (1995) reported similar findings as Kuhlman et al. in a study that compared outpatient psychiatric GAS admission and discharge scores. Their overall conclusion was that the GAS had satisfactory levels of reliability.

Validity. The authors of the GAS provided information regarding the correlation of the scale to other standardized measures of mental health. They also assessed the degree of sensitivity of the scale in regards to assessing changes in patient's condition while undergoing treatment and the scales ability to predict re-hospitalization.

The authors concluded that the GAS moderately correlated with the Mental Status Examination Record (MSER) (which provides an overall rating score of an individual's degree of psychiatric impairment) (.44 for patients at admission and .82 at 6 months) which they suggest reveals the GAS to be a global measure of mental health. Low correlations were found in comparison to the Psychiatric Status Schedule (PSS) (which provides a psychiatric diagnosis and level of severity of the diagnosis) and low to



moderate with the Family Evaluation Form (FEF) (which provides a psychiatric symptom rating by family members of an individual being evaluated) (.25 on admission and .52 on discharge) which suggests that the GAS is insensitive to specific psychiatric symptoms.

GAS ratings were reported to be more sensitive than the MSER, PSS or FEF in the ability to measure change in patient's condition. Correlations predicting re-hospitalization were small (.20) and it was concluded that the GAS was not a useful predictor in this regard.

### The Differential Emotions Scale (DES)

Overview. The renewed interest into human emotion has resulted in a variety of research attempts and methods to measure emotions. However, alternative scales similar to the DES have yet to surface especially in regard to the measurement of individual or discrete emotions and none have been developed for the direct measurement of multiple emotions.

As a result, the DES scale (Izard, 1972) has been frequently used in various research investigations where a measurement of emotion has been identified essential, for instance: to test mood-dependent recall (Johnson & Klinger, 1988); to assess the effect of exercise on mood state (Aganoff & Boyle, 1994); to assess autonomic responses to mood induction (Xu Meng & Wang, 1995); to rate hopelessness in children (Kashani, Suarez, Allan & Reid, 1997); depressed mood and pregnancy (Saks, 1985); depression and anxiety in chronic dialysis patients (Kutner, Fair & Kutner, 1985); exam anxiety (Fernandez & Allen, 1989); sleep disturbance (Fisher, W. P., 1993) and abstinence violation in child molesters (Ward, Hudson & Marshall, 1994) among others.

In regard to this investigation, the DES was selected as the most precise and standardized measure available in that it obtains a discrete emotions scale score. The DES also appears to be the most proficient in accessing multiple emotions especially as compared to the available adjective checklists such as the Multiple Affect Adjective Checklist, Semantic Differential and Ambivalence scales which have been identified as too lengthy, broad and that tend to cloud the multiple emotions discrete qualities into global or polar categories (Philippot, 1993).

Scale Description. The Differential Emotions Scale is a self-report instrument developed by Izard (1972) to assess the subjective experience of an individual's ten fundamental or primary discrete emotions. Izard reported that the scale was also capable of assessing combinations or patterns of emotions based on the subject's direct or immediate emotional experience. As a result of his investigations into cross-cultural facial expression of emotion, Izard considered that each of these emotions is discrete and that this quality is maintained and identifiable even when the discrete emotions occur in simultaneous multiples. The scale was described as an advance over the popular adjective checklist instruments in that the DES is a standardized scale that was capable of reliably dividing an individual's emotional experience into validated discrete emotion categories.

Izard (1972) proposed that the DES scale could be used for personality evaluations, psychodiagnostic evaluations of abnormal and normal behavior as well as a rating device in further clinical and research investigations in psychology. He further proposed that the DES could also be used to assess emotional conflicts (e.g. ambivalence) as well as the change process in psychotherapy outcome studies.

The DES consists of 30 emotion words, 3 for each of the 10 discrete emotions assessed. The fundamental emotions assessed include joy, interest, surprise, distress, anger, disgust, contempt, fear, shame, and guilt. In the standard instructions, subjects are asked to rate on a five point intensity Likert type scale the extent to which each item reflects how they feel at the present moment from one (not at all) to five (very strongly). The scale and its instructions and items are presented in Appendix A and D.

The DES was developed from labels applied to facial expressions in a cross cultural sample. These original 224 words were categorized into one of nine (later revised to ten with the inclusion of guilt) emotions categories by a panel of judges. These items were then factored down to the current 30 items. The 30 items presented to subjects on the DES are ordered accordingly to Izard's a priori groupings (1972). The raw score for each emotion is calculated by summing each intensity number rated from the three items within each emotion domain. Izard noted the need to avoid any omitted responses as a result of the small number in each subscale and subjects will be reminded to complete a response for each of the 30 items. In the event that an item was omitted, the experimenter will fill in the mean for that emotion subscore based on the subscales other two items (as per Izard's recommendations, 1972).

Through subsequent use and testing of the scale, Izard was able to show the scale achieved relatively high content and construct validity using factor analytic strategies as well as comparing the DES to instruments such as the MAACL (Zuckerman, 1960) (which is said to provide an assessment of an individual's mood state relative to several personality dimensions and the B.D.I. (Beck, 1976) (a rating scale of depression) which were shown to overlap with the discrete emotions concepts (Izard 1972).

Reliability. In the development of the DES scale, Izard noted that since the scale is a "state" measure of an individual's emotion experience at one point in time, the only appropriate or acceptable type of reliability is internal consistency (Izard, 1971). Izard (1971, 1972) and Boyle (1984) reported that the DES was found to be a reliable scale regardless of the small amount of items making up each emotion scale. The authors reported that internal consistency reliability for the DES was found to be .81 while item-whole correlations were found to be in the middle to high eighties (Izard, 1972). Izard specifically listed alpha coefficients for the 10 a priori scales in one study of 279 individuals as follows:

Interest: .79; Joy: .80; Surprise: .80; Distress: .90; Anger: .90; Disgust: .77; Contempt: .84; Fear: .87; Shyness: .76; Guilt: .71

Construct Validity. Izard (1971) noted that an emotion is an observable and directly measurable variable that can be reliably assessed by facial expression as well through physiological measures such as electromyography (Schwartz, Myers & Astrachan., 1973). Izard noted that the subjective experience could not be measured directly but that the experiential component of the emotion process could be inferred by measuring such things as changes in muscle potential (EMG), observable facial patterns and/or indirectly measured by a self-report device that is partly dependent on a cognitive process. Izard has performed various research investigations including factor analysis on the DES, which has resulted in various types of construct validity.

Discriminant validity was generally investigated by analysis of correlations among items. All of these investigations (Boyle, 1984, 1986, Boyle & Katz, 1991; Fridlund, Cottam & Fowler, 1982; Fuenzalida, Emde, Pannabecker & Stenberg, 1981;

Izard, 1972; Schwartz, 1982) showed correlations below .50 for all scales with the average correlation between each discrete emotion falling at about .21 which also supports the notion that the a priori factors are relatively independent. The highest correlations if not outliers were found in what Izard referred to as the hostile triad of anger, disgust, and contempt. However, Izard pointed out that these three emotions could be reliably encoded and decoded at the behavioral and expressive level. Boyle (1984) and in a replication Roesch (1998), used a research design of induced mood (4 conditions) and actual mood situation on 200 undergraduates and applied a repeated measures multiple discriminant functional analysis of the results of the DES administered to each group. The investigators reported that two-thirds of the DES items discriminated between the 5 conditions in what they considered a stringent test of item validity. Ouss, Carton, Jouvent & Widloecher (1990) in the development of the French version of the DES, reported similar results as Boyle though used a principal components analysis with varimax rotation.

Convergent validity has also been established using the Beck Depression Inventory (Beck, 1967) and the Multiple Affect Adjective Checklist (Zuckerman, (1960). As a result of these validity investigations, it was found that the DES could be modified to be a diagnostic indicator of depression as well as anxiety and Izard developed the DES+D and DES+A as a tool to assess each respective diagnostic group (Izard, 1972). A further result of these investigations revealed that both anxiety and depression had characteristic emotions associated to them and that there were generally two or more emotions associated with such complaints and that the emotions tended to be of the negative variety.

### Procedure

The participants completed the Differential Emotions Scale (D.E.S., Izard 1972) and, in following the standardized instructions for the scale, were told it is a short, self-report measure that assesses how one is feeling at the present time (see Appendix A for sample instructions). In all but the control sample, participants were given the option to complete the scale, along with other research scales and general admission scales that may have been offered at intake, or defer the process if they so chose. Participants that decided to engage in the study also completed the authorization form and waiver (see Appendix B) and were presented copies of such which included the name, address, phone number and affiliation of the experimenter.

Following administration of the DES and completion of the intake or therapy session, the intake worker or treating clinician recorded the participants GAS score in the upper right hand corner of the DES answer page and submitted all forms to the experimenter. The GAS score was reviewed by the experimenter along with the clinician and any questions or concerns regarding the score were eradicated prior to inclusion of the participant into the study. Any tentative or non-definite scores were excluded from the study. Participants in the non-clinical sample were presumed to be functioning in the high or normal level of overall functioning. The clinical subjects were placed by the investigator into one of the levels of functioning conditions based on their GAF scale rating of moderate or severe. As the GAS provides a continuous measure (from 0 to 100) of overall functioning it was determined that categorizing the GAS scores into two groups would allow for easier comparison between all groups on the criterion measure.

Endicott et al. (1976) reported that most healthy individuals tend to score in the 71 and higher range of the GAS scale and that individuals who receive outpatient psychiatric or psychological services tend to fall in the range from 31 to 71 as individuals who receive scores of 30 and lower are typically seen in the hospital as inpatients. As a result, the non-clinical participants in the study from the normal population were not interviewed regarding their GAS status as these individuals were assumed to be functioning in the high or normal range on the GAS and which also served the purpose of avoiding the intrusion that obtaining a GAS score would have involved and perhaps influenced their report on the DES. The clinical participants were separated by splitting the scores of 31 and 70 which is 50 resulting in a severe impairment in functioning group in the range from 31 to 50 and a moderate range of impairment in functioning group corresponding to scores of 51 to 70. Though it was assumed that the non-clinical group would contain some amount of individuals who may be suffering from a psychological condition that is being treated or undiagnosed, it was hypothesized that this amount would be small and controlled for by statistical analysis.

### Field Procedures

Aside from the above scale procedures, subjects were further instructed to complete a consent form stressing that their participation is completely voluntary and that the subject was free to discontinue the study at any time. The consent form is included in the Appendix B.

As the study elicited self-reported emotions over a short period of time (the scale can be completed on average in less than 5 minutes) and with a low-pressure approach, it

was proposed that risk was minimal to the subjects. In addition, upon the completion of the study, subjects were debriefed and allowed to ask any questions or present concerns to the clinicians or examiner.

#### Data Collection, Scoring and Recording

The DES was administered by the principal investigator (control sample only), intake clinicians and therapists as outlined earlier. The examiner then collected, scored and recorded the results from the DES and GAS into a data base.

#### Data Processing and Analyses

In accordance with the DES scale instructions, the investigator tallied the score numbers for each of the three emotion synonyms relative to the ten discrete emotion categories. To maintain a conservative approach, it was decided that a score of three (relative to moderate experience of the discrete emotion or synonym) or above to include that emotion in the total score of emotions. Even if each of the three synonyms received a score of three or above, only one discrete emotion was tallied. A total number of emotions experienced score would then be derived with an expected range of 0 to 10. Next, a data matrix was constructed from which measures of central tendency were derived and forwarded for use in the statistical analysis.

Two statistical analyses were conducted. The first was to assess the relationship between the predictor and criterion variables namely, the Bivariate  $r$ . Secondly, the investigation attempted to determine if the levels of the predictor variable differed significantly from each other on the criterion variable and therefore a One-way Analysis



of Variance was performed. Both procedures were performed using the SPSSX software statistical package.

## Chapter IV

### ANALYSIS OF THE DATA

This chapter begins with a review of the participants in the study followed by the descriptive statistics for the Differential Emotions Scale (DES) and the Global Assessment Scale (GAS) that were used for the data analytic procedures. Following this is a section entitled Tests of Hypotheses, which contains the subheadings, DES as a Screening Variable and Scale Intercorrelations, which separate and analyze the two research hypotheses of the study. Within each subsection the specific hypothesis is presented along with the statistical procedure used to test it followed by the results of each test and the implications of the results on each hypothesis. Finally, an interpretation of results of the hypothesis tests is incorporated into a brief summary of the findings of this study.

#### Participants

Participants in this study were separated into two groups, non-clinical and clinical. The non-clinical participants were recruited from Continuing Education classes at the University of Pennsylvania (UP), Department of Education. Clinical candidates were obtained from the Center for Psychotherapy Research (CPR) at UP and the Philadelphia Mental Health Center (PMHC). A total of 300 participants completed the research protocol. Seventy-five participants were obtained from the continuing education classes, which were assigned to the non-clinical group. Two hundred and twenty five participants engaged in the study at the CPR and PMHC sites. One hundred and fifty

subjects were randomly selected from the 225 total clinical participants in effort to equally fill each of the clinical subgroups, moderate and severe, as based on their GAS score. This resulted in 75 participants being assigned to each of the moderate and severe level of impairment in functioning cells.

#### Descriptive Statistics for DES and GAS Scales

Table 1 summarizes the mean, standard deviation, kurtosis, skewness and observed minimum and maximum scores for the non-clinical and clinical groups on the DES. To allow for greater comparison between the non-clinical and clinical participants, the results for the clinical group were divided into two groups for analysis: (a) moderate level of functioning clinical group ( $n = 75$ ) with GAS scores in the range of 51 to 70 and (b) severe level of functioning clinical group ( $n = 75$ ) with GAS scores in the range of 31 to 50.

The possible scores for the DES scale range from 0 to 10. The mean DES score for total number of emotions reported for the moderate clinical group was 3.9 ( $SD = 1.90$ ) while the severe functioning clinical group ( $n = 75$ ) had a mean of 3.4 ( $SD = 1.80$ ). The control group ( $n = 75$ ) had a mean of 5.4 ( $SD = 2.07$ ).

The scale skewness and kurtosis (with Kolmogorov-Smirnov test of normality in parentheses) for the moderate and severe functioning clinical groups was .433 ( $D = .118$ ,  $p < .012$ ) and .273 for the moderate group and .687 ( $D = .201$ ,  $p < .000$ ) and .650 for the severe group. The non-clinical group had a skewness factor of .132 ( $D = .120$ ,  $p < .010$ ) and a kurtosis factor of -.205. These results allow one to conclude that the scale scores

Table 1

**Descriptive Statistics for the DES Scale in the Clinical Moderate and Severe Levels of Functioning and Non-Clinical Samples**

<b>DES Scale</b>	<b><u>M</u></b>	<b><u>SD</u></b>	<b><u>Min</u></b>	<b><u>Max</u></b>	<b><u>Skew</u></b>	<b><u>Kurtosis</u></b>
<b>Clinical/Moderate Functioning</b>	3.89	1.90	0	10	.433	.273
<b>Clinical/Severe Functioning</b>	3.40	1.80	0	9	.687	.650
<b>Non-Clinical</b>	5.40	2.07	1	10	.132	-.205

were normally distributed with little peaking or uneven grouping of scores. Table 2 summarizes the mean, standard deviation, kurtosis, skewness and minimum and maximum scores for the GAS. The possible scores for the clinical group on the GAS range from 31 to 70.

Participants in the non-clinical group were not assessed for or assigned a GAS score because these subjects were randomly selected from the normal population assumed to be functioning in the normal/healthy range (or GAS score between 71 to 100). These subjects were also excluded from the GAS procedure to avoid the intrusion into their personal lives that gaining a GAS score would have required. Since no GAS scores were acquired, the non-clinical group was therefore excluded from statistical analyses in which the GAS score was analyzed.

The mean score on the GAS for the moderate clinical group was 59.53 (SD = 5.3). This distribution had a skewness score of .205 (D = 1.141,  $p < .148$ ) and a kurtosis score of -1.114. The mean score on the GAS for the severe clinical group was 44.8 (SD = 4.48). This distribution had a skewness score of -.841 (D = 1.367,  $p < .048$ ) and a kurtosis score of .140. All distributions were reported to be normal.

### Tests of Hypotheses

The discussion of hypothesis tests will be divided into the following subsections:

DES Score as a Screening Variable and Scale Intercorrelations.

#### DES Score as a Screening Variable

Table 2

Descriptive Statistics for the GAS Scale for the Clinical Moderate and Severe Levels of Functioning Samples

<b>GAS Scores</b>	<b><u>M</u></b>	<b><u>SD</u></b>	<b><u>Min</u></b>	<b><u>Max</u></b>	<b><u>Skew</u></b>	<b><u>Kurtosis</u></b>
<b>Clinical/Moderate Functioning</b>	59.53	5.30	51	70	.205	1.11
<b>Clinical/Severe Functioning</b>	44.80	4.48	32	50	.841	.140

Based on the theoretical prediction that individuals who present lower overall levels of functioning would report fewer emotions, Hypothesis 1 stated that all of the participants who were placed in the non-clinical group would be expected to report a significantly greater mean number of emotions on the DES as compared to the mean DES score for both the moderate and severe level of functioning clinical participants.

This hypothesis was tested using the One-Way Analysis of Variance (ANOVA) that analyzed the DES score means for the non-clinical and moderate and severe functioning groups to determine whether a significant difference between these means existed.

Since a significant difference between the means was found, a multiple comparisons Post Hoc analysis using the Tukey HSD test was conducted to determine if the means from each of the three separate groups (non-clinical, moderate and severe functioning) were significantly different from each other and in effort to determine the degree to which the DES could discriminate among subjects.

#### Mean Differences between Non-clinical and Moderate and Severe Level of Functioning Clinical Groups

Part one of the statistical analyses examined whether the means between the non-clinical and moderate and severe clinical samples were unequal. A One-Way ANOVA was performed between the groups (non-clinical, moderate and severe functioning) which revealed a significant difference between these means as predicted,  $F(2, 224) = 21.747$ ,  $p < .000$ .

### Post Hoc Multiple Comparisons Between Non-Clinical, Moderate and Severe Level of Functioning Clinical Group Means

Analysis of the comparison between the group means was performed by application of the Tukey HSD post hoc test supplied within the SPSS statistical package. The non-clinical group mean was also shown to differ significantly from the severe (Tukey  $q = 1.25$ ,  $p < .000$ ) and moderate (Tukey  $q = .766$ ,  $p < .000$ ) group means. The moderate versus severe level of impairment in functioning group means were found to be not significantly different (Tukey  $q = -.247$ ,  $p < .263$ ).

### Analysis of Results

In keeping with the prediction of Hypothesis 1, these results indicate that on average, the non-clinical participants mean score on the DES was significantly different from and higher than the DES mean score for both the moderate and severe level of impairment in functioning clinical participants. The results also indicate that the number of emotions reported on the DES is sensitive enough to allow separation between non-clinical and moderate or severe level of impairment in functioning participants but not sensitive enough to discriminate between moderate and severe levels of impairment in functioning individuals.

### Scale Intercorrelations

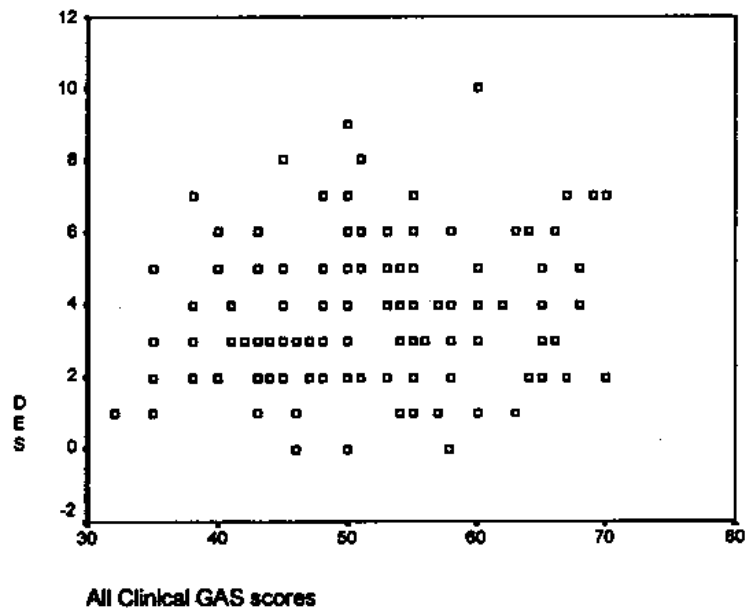
The developmental theory of multiple emotions predicts that delays or lapses in emotional development can lead to emotional problems as measured by difficulty in



overall functioning. Hypothesis 2 predicted that the participants would present increasingly lower scores on the DES relative to a corresponding decreased level of functioning score on the GAS.

Figure 1 presents a scattergram of the distribution of scores on the DES and GAS for the clinical groups. The distribution shows a broad scatter of scores in the box suggestive of no significant relationship between the scales or heteroscedasticity. However, the results of the scatterplot have likely been affected by several of the extreme or outlier scores in this group and further statistical analysis was deemed appropriate.

A second test, the Pearson product moment correlation ( $r$ ), was performed to further assess for a relationship between the two scales, which were evaluated through two-tailed tests of significance. The following is a summary of the hypotheses related to scale intercorrelations and the results for each. Hypothesis 2 predicted that an individual's level of functioning would be positively correlated to the number of emotions reported on the DES. In other words as level of functioning increased, number of emotions reported on the DES would also increase. As predicted, the correlation between these two scales was significant and positive in direction,  $r(225) = .415$ ,  $p < .01$ . Therefore individuals in this sample with high scores on the GAS were also likely to report a relatively high number of emotions as compared to individuals who had low GAS scores and fewer emotions. This conclusion, though statistically significant does not appear to be practically significant given the results of both the results of the Scattergram in Figure 1 and the outcome of the multiple comparisons tests for Hypothesis 1. As a result, conclusions drawn forth regarding the correlation between the scales and hypothesis 1b cannot be substantiated.



**Figure 1.** Distribution of Raw Scores for the DES and GAS Scales Clinical Group.

These results are however, in keeping with the work of developmental psychologists who have subjectively noted that troubled children have been observed to report few emotions and difficulty in identifying multiple emotions. It is also in keeping with empirical adult research that has shown those individuals who express no or few emotions typically also report greater emotional (DuBrin & Zastowny, 1988; Orlinsky & Howard, 1986) and physical (Beutler et al., 1986; King & Emmons, 1990) distress and complications.

#### Summary

The results of this study are consistent with the predictions of developmental psychologists regarding multiple emotions in children. As predicted, the means for the DES were significantly different between the non-clinical group and both the moderate and severe functioning groups with the differences in the expected directions. There was no significant difference between the means of the moderate and severe functioning groups which suggests that the DES may not be sensitive enough to differentiate between clinical levels of functioning.

Intercorrelations between the DES and the GAS were found to be significant and in the predicted directions as based on the Person product moment correlation test though scatterplot analysis suggests otherwise. As a result, no definitive conclusions could be drawn in this regard.

Finally, the descriptive statistical results indicate, from an exploratory analysis, that the incidence of a multiple emotions deficit in the general population may be in the range of 3 percent, while in the clinical population this factor appears higher and in the 10 percent range.

## Chapter V

### CONCLUSIONS AND RECOMMENDATIONS

#### Discussion

As discussed in Chapter I, children who have not emotionally developed to the level of being able to express and understand multiple simultaneous emotions have been found to have emotional problems and difficulty in overall functioning that at times, has ended in referral for psychological services. Though child psychology clinicians and researchers have investigated, addressed and reported success in remediating the problem of multiple emotions and the multiple emotions deficit (MED), it has never been directly addressed in the adult population.

The purpose of this investigation was to remedy this void in the research and explore whether adult subjects from a normal and clinical population sample would differ in the number of discrete emotions reported as dependent on their overall level of functioning. This was carried out by having all the participants in this study complete the Differential Emotions Scale (DES) and rating the clinical subjects level of functioning on the Global Assessment Scale (GAS).

As described in Chapter IV, the results of this investigation support the prediction that individuals from the non-clinical population would report a higher mean score of multiple emotions on the DES as compared to moderate and severe level of functioning clinical subjects. This result suggests that individuals who present for psychological services, similar to child clinical subjects, may be impaired in their ability to acknowledge the full range of emotions that normal individuals typically do when similarly assessed. In this regard, it could be said that clinical subjects on average

present a deficit in their ability to identify or express multiple simultaneous emotions herein described as the Multiple Emotions Deficit (MED).

The results do not suggest however, that all clinical subjects suffer from the MED and that the MED is exclusive to clinical populations. Rather, it only points to the fact that the incidence of the MED may be higher in clinical populations, which was predicted from the child development research data.

As an exploratory investigation seeking to expand both clinical and research knowledge, this study has been able to establish an initial baseline for mean scores in both non-clinical and clinical sample populations regarding the number of emotions subjects report at one point in time and from which further investigations may be able to use as a benchmark.

The results also indicate, contrary to predictions, that though clinical individuals differ from non-clinical subjects in mean number of emotions reported, they (clinical subjects) do not significantly differ among each other in mean number of emotions reported. This is suggestive of the fact that the DES is not a sensitive enough measure to differentiate within the clinical population and/or that the average range of emotional identification does not significantly vary when leaving the realm of normal functioning. Though the overall mean number of emotions reported in clinical subjects is lower than non-clinical subjects, it does not appear to lower progressively among clinical subjects along with their increasingly lower levels of functioning.

This chapter reviews the results for each hypothesis and the implications for their clinical application and utility. Following this is a discussion of the limits of the study, suggestions for future research and a summary and conclusions.

### Multiple Emotions as a Screening Variable

As discussed in Chapter I, there has been no prior attempt to assess, either from a normal or clinical population, the number of simultaneous emotions that adults experience and report and whether this number is affected by an individual's level of overall functioning. Child developmental psychologists (Harris, 1989; Harter, 1987; Terwogt, 1990) identified that the majority of clinical individuals they appraised suffered from delays or difficulty in expressing and understanding the construct of multiple emotions. However, the incidence of this delay in children has never been quantified.

Hypothesis 1 proposed that, as a group, individual's who presented for psychological services would be more likely to suffer from the MED or impaired expression of multiple emotions as compared to their non-clinical counterparts and that this deficit could be measured by the DES.

The results in Chapter IV suggest that the DES may be useful as a screening tool capable of differentiating between clinical and non-clinical populations as based on an individual's ability to acknowledge and/or express his/her emotions. However, the results do not support the proposition that the DES is capable of screening between individuals within the clinical population and that a decrease in overall level of functioning co-occurs with a decrease in number of emotions reported beyond placement in the clinical group. In fact, as seen from the scatterplot in Chapter IV, scores for the moderate and severe functioning groups were rather varied and broad indicative of the fact that several of the clinical subjects were capable of expressing/identifying multiple emotions relative to their non-clinical counterparts.

As a result, the DES cannot be recommended at this point as a stand alone screening measure for the MED beyond separation between non-clinical and clinical levels of functioning. Future research might focus on establishing the incidence of the MED in the both the child and adult general and clinical populations, which may allow for greater utility in establishing the DES as a screening measure.

#### Distribution of the Differential Emotions Scale

Extrapolating from child multiple emotions theory, it was predicted that as a result of the MED, the distribution of scores on the DES for the moderate and severe level of impairment in functioning groups would be positively skewed and the skew increase as level of functioning decreased. However, contrary to this prediction, the distribution of scores for all groups on the DES was normal. There was no notable skewing of scores in either the normal, moderate or severe level of functioning groups, which suggests that the MED in the general and clinical population is normally distributed.

#### Scale Intercorrelations

The results of this analysis are mixed. As predicted from child multiple emotions theory, participants from the non-clinical group, hypothesized to be functioning in the highest range of overall functioning, had a significantly higher mean score number of emotions than did subjects from the moderate and severe clinical groups. This result, as reported in Chapter IV, was deemed statistically significant but not practically significant

given the broad range of scores found in the clinical groups and the fact that as severity increased number of emotions did not decrease.

Hypothesis 2 predicted that a positive correlation would exist between number of emotions reported and level of overall functioning. As noted in Chapter IV, a significant correlation was found between these two variables which would suggest that this relation exists. However, as with the comparison of means, this significance can not be accepted on a practical level given the broad placement of scores found within the scatterplot test as well as results of the multiple comparisons tests of significance. As a result, the null hypothesis cannot be confidently rejected in regard to this hypothesis. Though there was found to be a significant correlation, it is unknown whether this was a result of the subject size or an actual significant effect.

#### Tests of Means

The following discussion addresses differences in scale means for which the hypotheses were formulated.

#### Differential Emotions Scale

As predicted, participants in the non-clinical group reported significantly more emotions than those in either the moderate or severe level of functioning groups. However, contrary to predictions as discussed above under "DES as a Screening Variable," the DES was not able to differentiate between the mean emotion scores for the moderate and severe levels of functioning. These findings suggest that individuals in the normal range of functioning have higher mean levels of multiple emotions in comparison



to individuals from the clinical population but that individuals in clinical populations have overall suppressed emotional reports but not to a degree to differentiate between them at least based on their DES report.

Further investigation may focus on the possibility that certain types of individuals for instance, those with more severe diagnoses, may be more likely to present decreased multiple emotion expression or deficit that the level of functioning score could not differentiate. Therefore, this scale appears to be of more value in research or clinical applications that might differentiate between normal and clinical populations in which before and after mean scale scores could be compared or as a general measure of number of multiple emotions for incidence measures regarding the general population.

#### Level of Functioning

As discussed above under "Scale Intercorrelations," those subjects from the non-clinical population who were estimated to be functioning in the high range also had corresponding higher mean scores on the DES while those with lower than normal levels of functioning had lower mean DES scores. However, these mean scores may be misleading as examination of specific scores from all subjects reveals that subjects in both the non-clinical and clinical populations presented a broad range of scores including low and high scores that would raise a caution that one cannot assume that a low score on the DES will always indicate low overall functioning and conversely, a high DES score would not always insure high overall functioning.

#### Limitations of the Present Study

As discussed in Chapter I, the construct of multiple emotions has never been directly assessed in an adult population. As a result, it was difficult to make more than general predictions as to how participants would respond and results gathered within this study are considered speculative. This study was based on evidence garnered from child development data and research which has concluded that lack of development of the multiple emotions capacity appears correlated to difficulty in functioning and emotional distress. Much of this data and the conclusions derived were based on the subjective interview of children in clinical situations and no objective measures used. This study hoped to remedy this flaw by using the DES, a known objective measure of multiple emotions in adults. The results noted in Chapter IV suggest that the DES was able to assess each participants momentary experience of emotions and that each subject could provide an accurate report of their emotional status. However, there are numerous factors that might explain why clinical subjects reported fewer emotions on the DES aside from having the MED and that the MED may not always be the cause of an impoverished DES report. These factors might include psychiatric symptoms often presented at intake which include difficulty concentrating, distractibility, lack of focus, confusion, fatigue and somatic distress that may cause an impoverished report on the DES. In addition, factors such as neurological impairment or personality traits such as alexithymia may also be factors that limit an individual's emotional experience and report. Also, since no demographic data was retrieved from the participants, factors such as gender, age and social economic status may have played a role in the outcome of the study.

Lack of responding on the DES by clinical participants may also have been influenced by lack of motivation as well as an attempt to avoid presenting a positive

impression that one might perceive in endorsing a positive emotion, which might downplay their complaint. Also, clinical subjects just as they might be inclined to overestimate their limitations, may also be inclined to downplay their problem and therefore the subjective level of functioning rating may be inaccurate in this regard.

Individuals in the non-clinical group may have been more motivated to cooperate and have over-responded on the DES scale given that 30 items were presented and choosing only a few responses may be viewed as an impoverished response. Again, a more objective measure of overall distress and functioning may have provided further separation and differentiation.

Further, subjects who reported one or no emotions were not questioned further regarding their multiple emotions capacity. It may be that some of these subjects, perhaps at that point in time only, were experiencing one or no emotions though they had the multiple emotions capability. Therefore, assuming that a report of no or one emotion necessitates that the person has the MED or, the assumption that at all times all individuals experience at least 4 emotions (the mean in this study) can not be supported without further investigation. Also, though the clinical subjects overall level of functioning may suggest a certain corresponding overall level of emotional development, it is difficult to conclude that a lack of development in one emotional area, such as multiple emotions, would always result in psychological distress leading to treatment.

The assumption that the non-clinical group would for the most part be functioning in the healthy range may be viewed as problematic. Since the GAS was not applied to the non-clinical subjects, it is difficult to be certain that all these subjects were functioning in the healthy range and therefore, some of the individuals who scored low

on the DES might actually have had low GAS scores which, had they been appraised for GAS, would have allowed greater differentiation and correlation of the data. In addition, since the clinical sample was split into only two groups, more exact differences between these subjects were lost. It might have been more beneficial to have separated the groups in levels of 10 (from 0 to 100) on the GAS to see if the DES scale offered any further discrimination both between clinical subjects as well as between clinical and non-clinical subjects.

This study was also limited by the fact that no previous work in this area had been performed and therefore no data regarding the incidence of the MED in adults, let alone an adult's typical result on the DES, could be offered for comparison. Therefore, there was no way to speculate or predict what direction the results may take or predict what the incidence of the MED would be in either the general and or clinical population. Since the majority of participants in the study reported more than one emotion on the DES scale it is proposed that the incidence of a complete MED in both populations is low. The percentage of individuals who reported no or one emotion was found to be 3% in the normal and 10% in the clinical population. Also, since the study chose a conservative level of acceptance on the DES for the presence of an emotion (a 3 on the scale), individuals who scored a 1 (slight or no emotion) or 2 (mild) were excluded which may have resulted in an impoverished overall response.

As noted in Chapter IV, since the study sample was rather large, results, such as the correlation coefficient, may have been a result of this factor and not a true indicator of a relationship as evidenced in the scatterplot in Chapter IV.

Finally, as the DES is a subjective rating of an individual's emotional experience, it is difficult to assume that increased or decreased responding on the DES is evidence of an individual's ability to experience multiple emotions and that these emotions have occurred simultaneously as postulated in the scale. This question will remain until a more definitive measure of an individual's emotion state can be secured.

#### Recommendations for Future Research

While this study found that individuals from the non-clinical population reported a significantly higher number of emotions as compared to individuals rated as having lower levels of functioning, further study is necessary to distinguish among the possible reasons for this result.

First of all, it is unknown what other factors such as concentration, motivation and self-description and presentation factors might have influenced the subjects ratings and presentation. Therefore it may be beneficial to acquire additional measures for both emotional and overall functioning. Assessments such as psychiatric diagnosis, further objective measures (such as the Minnesota Multiphasic Personality Inventory (MMPI) or the Millon Clinical Multitaxial Inventory) and objective ratings of overall functioning from additional raters as well as physiological and behavioral measures of emotion may provide for greater differentiation between and among subjects and provide further verification of both the GAS and DES results.

Secondly, having established some baseline level of multiple emotions reporting on the DES, further research can now follow up to confirm and establish additional levels of incidence of the MED in both the general and clinical populations that will allow for

greater analyses and expanded predictions as compared to the observations provided herein.

It appears that it would also be beneficial to establish some baseline as to the incidence of the MED in the childhood population and to either design or redesign the DES to obtain a more objective measure in this population. Establishing a baseline in the child population would allow for comparison of incidence ratings in adults and the substantiation that the MED carries on into adulthood if not addressed which might be measured by a longitudinal study.

Another level of research would be to individually examine subjects that are in the adult clinical group to determine their ability to express and understand the construct of multiple emotions relative to Harter's (1987) five levels of multiple emotional development that may reveal the more common levels of functioning or deficit in adults. Following such, one could assess remediation techniques similar to that used in children to assess if the deficit in adults can be as effectively removed as in the child population.

Finally, in effort to begin to establish some reliability for the DES and GAS, it would be beneficial to gain DES and GAS reports for the same subjects over several periods of time to establish an overall measure of ones multiple emotion capacity and functioning rather than relying on a one time measure.

### Summary and Conclusions

The purpose of this study was to determine, relative to child development research, whether clinical and non-clinical subject's report of multiple emotions differed significantly. It also sought to address whether adult subject's report of number of

simultaneous emotions would positively correlate with their estimated overall level of functioning. The study also proposed to expand the knowledge base regarding emotions research and clinical applications of this research. The following discussion reviews the findings relative to the theory of multiple emotions and the clinical application and utility of such.

### Multiple Emotions Deficit

Extrapolating from the child developmental research, this study postulated that individual's seen in clinical settings would be more likely than those in the non-clinical population to present a lower number of reported emotions. As no incidence data for this deficit existed in either the adult or child populations, no estimate of number of emotions could be posited and therefore the results acquired were seen as the establishment of a baseline for both clinical and non-clinical or normal populations.

The results presented in Chapter IV show that there was a significant mean difference in number of reported emotions between the non-clinical and clinical populations suggestive of the fact that individuals who present for psychological services generally report fewer emotions, a minority of which, that may also suffer from the MED.

Results of the correlation analyses were inclusive and recommendations regarding the use of the DES as an indicator of emotional distress and difficulty in functioning beyond distinction between non-clinical and clinical levels of functioning were withheld.

The results do confirm that individuals from both populations typically report more than one emotion on the DES which was postulated by several of the emotions

researchers (Izard, 1972, Plutchik, 1962; Polivy, 1981). These results also indicate that multiple emotions should be taken into consideration in research regarding singular emotions as well as mood induction studies in which multiple emotions have been cited as a confounding variable (Polivy, 1981).

Given that various counter explanations for the results have been forwarded, no definitive conclusions regarding the MED can be drawn at this time other than the descriptive inferences offered regarding the populations.

#### Overall Level of Functioning

Again in keeping with child development research, this study proposed that an individual's level of functioning would predict the amount of emotions reported. The results indicate that individuals from the general or non-clinical population estimated to be in the normal range of functioning reported significantly higher numbers of emotions on the DES. However, when assessed as a total group, there was a large overlap of scores on the DES for all subjects, which suggests that level of functioning alone is not a good predictor of or evidence of the MED.



### References

Abe, J. A. & Izard, C. E. (1999a). A longitudinal study of emotion expression and personality relations in early development. Journal of Personality & Social Psychology, 77, 566-577.

Abe, J. A. & Izard, C. E. (1999b). The developmental functions of emotions: An analysis in terms of differential emotions theory. Cognition & Emotion, 13, 523-549.

Achterberg-Lawlis, J. (1982). The psychological dimensions of arthritis. Journal of Consulting & Clinical Psychology, 50, 984-992.

Aganoff, J. A. & Boyle, G. J. (1994). Aerobic exercise, mood states and menstrual cycle symptoms. Journal of Psychosomatic Research, 38, 183-192.

American Psychological Assn. Ethics Committee. (1992). Ethical Principles of Psychologists and Code of Conduct. American Psychologist, 47, 1597-1611.

Appelbaum, M. I., Butterfield, P. M. & Culp, R. E. (1993). Operating characteristics and psychometric properties of the IFEEL pictures. In R. N. Emde & J. D. Osofsky (Eds.), The IFEEL pictures: A new instrument for interpreting emotions. (pp. 97-130). Madison, CT: International Universities Press, Inc.

Arnold, M. B. (1970). Feelings and emotions: The Loyola symposium. New York, N.Y: Academic Press.

Arsenio, W. F. & Kramer, R. (1992). Victimizers and their victims: Children's conceptions of the mixed emotional consequences of moral transgressions. Child Development, 63, 915-927.

Barden, R. C., Zelko, F. A., Duncan, S. W. & Masters, J. C. (1980). Children's consensual knowledge about the experiential determinants of emotion. Journal of Personality & Social Psychology, 39, 968-976.

Beck, A. T. (1976). Cognitive therapy and the emotional disorders. New York: New American Library.

Beck, A. T. (1987). Cognitive models of depression. Journal of Cognitive Psychotherapy, 1, 5-37.

Beck, J. S. (1995). Cognitive therapy: Basics and beyond. New York, NY: The Guilford Press.

Beutler, L. E., Engle, D., Oro'-Beutler, M. E. & Daldrup, R. (1986). Inability to express intense affect: A common link between depression and pain? Journal of Consulting & Clinical Psychology, 54, 752-759.

Beutler, L. E. & Hamblin, D. L. (1986). Individualized outcome measures of internal change: Methodological considerations. Journal of Consulting & Clinical Psychology, 54, 48-53.

Bishop, S. R., Edgley, K., Fisher, R. & Sullivan, M. (1993). Screening for depression in chronic low back pain with the Beck Depression Inventory. Canadian Journal of Rehabilitation, 7, 143-148.

Blatt, S. J. (1983). Narcissism and egocentrism as concepts in individual and cultural development. Psychoanalysis & Contemporary Thought, 6, 291-303.

Blatt, S. J. & Shickman, S. (1983). Two primary configurations of psychopathology. Psychoanalysis & Contemporary Thought, 6, 187-254.

Bleuler, E. (1937). Textbook of psychiatry. Berlin: Springer.

Bohart, A. C. (1977). Role playing and interpersonal-conflict reduction. Journal of Counseling Psychology, 24, 15-24.

- Boyle, G. J. (1984). Reliability and validity of Izard's Differential Emotions Scale. Personality & Individual Differences, *5*, 747-750.
- Boyle, G. J. (1986). Estimation of measurement redundancy across the Eight State Questionnaire and the Differential Emotions Scale. New Zealand Journal of Psychology, *15*, 54-61.
- Boyle, G. J. & Katz, I. (1991). Multidimensional scaling of the Eight State Questionnaire and the Differential Emotions Scale. Personality & Individual Differences, *12*, 565-574.
- Brody, L. R. (1985). Gender differences in emotional development: A review of theories and research. Journal of Personality, *53*, 102-149.
- Brown, J. R. & Dunn, J., Continuities in emotion understanding from 3-6 yrs. (1996). Child Development, *67*, 789-802.
- Brown, S. D. & Lent, R. W. (Eds.), (1992). Handbook of counseling psychology (2nd ed.). New York, NY: John Wiley & Sons.
- Cain, B.S. & Smith-Moore, J. J. (2000). I don't know why...I guess I'm shy. Washington, DC: Magination Press/American Psychological Association.
- Cain, B. S. & Patterson, A. (1990). Double-dip feelings: A book to understand emotions. New York: Brunner/Mazel.
- Camras, L. A., Sullivan, J. & Michel, G. (1993a). Do infants express discrete emotions? Adult judgments of facial, vocal, and body actions. Journal of Nonverbal Behavior, *17*, 171-186.

Camras, L. A., Holland, E. A. & Patterson, M. J. (1993b). Facial expression. In M. Lewis & J. M. Haviland (Eds.), Handbook of emotions. (pp. 199-208). New York, NY: The Guilford Press.

Camras, L. A., Sachs-Alter, E. & Ribordy, S. C. (1996). Emotion understanding in maltreated children: Recognition of facial expressions and integration with other emotion cues. In M. Lewis & M. Sullivan (Eds.), Emotional development in atypical children. (pp. 203-225). Mahwah, NJ: Lawrence Erlbaum Associates, Inc.

Cannon, J. R. & Pierce, R. M. (1968). Order effects in the experimental manipulation of therapeutic conditions. Journal of Clinical Psychology, 24, 242-244.

Capatides, J. B. & Bloom, L. (1993). Underlying process in the socialization of emotion. Advances in Infancy Research, 8, 99-135.

Carpenter, F. H. & Mahoney, M. J. (1980). Attentional processes and stress-related performance. Cognitive Therapy & Research, 4, 423-426.

Case, R. (1991). The minds staircase: Exploring the conceptual underpinnings of children's thought and knowledge. Hillsdale, NJ: Lawrence Erlbaum Associates Inc.

Ciarrochi, J. V., Chan, Y. C. & Caputi, P. (2000). A critical evaluation of the emotional intelligence construct. Personality & Individual Differences, 28, 539-561.

Cohen, A. S., Kim, S. & Subkoviak, M. J. (1991). Influence of prior distributions on detection of DIF. Journal of Educational Measurement, 28, 49-59.

Corbishley, M. A., Hendrickson, R., Beutler, L. E. & Engle, D. (1990). Behavior, affect, and cognition among psychogenic pain patients in group expressive psychotherapy. Journal of Pain & Symptom Management, 5, 241-248.

Coren, S. & Russell, J. A. (1992). The relative dominance of different facial expressions of emotion under conditions of perceptual ambiguity. Cognition & Emotion, 6, 339-356.

Cox, A. & McCay (1982). Psychosocial correlates of cancer in subjects with antiemotional attitudes. Psychophysiology, 4, 219-228.

Daldrup, R. J., Engle, D., Holiman, M. & Beutler, L. E. (1994). The intensification and resolution of blocked affect in an experiential psychotherapy. British Journal of Clinical Psychology, 33, 129-141.

Damasio, A. (1994). Prefrontal Cortex: Descartes' error: Emotion, Reason and the Human Brain. New York, NY: Grosset/Putnam Inc.

Darwin, C. (1872, reprinted 1998). The expression of the emotions in man and animals. (3rd ed.). Ekman, Paul (Ed.), New York, NY: Oxford University Press.

Donaldson, S. K. & Westerman, M. A. (1986). Development of children's understanding of ambivalence and causal theories of emotions. Developmental Psychology, 22, 655-662.

DuBrin, R. & Zastowny, T. R. (1988). Predicting early attrition from psychotherapy: An analysis of a large private-practice cohort. Psychotherapy, 25, 393-408.

Duclos, S. E., Laird, J. D., Schneider, E. & Sexter, M. (1989). Emotion-specific effects of facial expressions and postures on emotional experience. Journal of Personality & Social Psychology, 57, 100-108.

Dunn, J., Creps, C. & Brown, J. (1996). Children's family relationships between two and five: Developmental changes and individual differences. Social Development, 5, 230-250.

Ekman, P. (1971). Universals and cultural differences in facial expressions of emotion. Nebraska Symposium on Motivation. (pp. 207-283).

Ekman, P. & Friesen, W. V. (1976). Measuring facial movement. Environmental Psychology & Nonverbal Behavior, 1, 56-75.

Ekman, P. & Friesen, W. V. (1986). A new pan-cultural facial expression of emotion. Motivation & Emotion, 10, 159-168.

Ekman, P., Friesen, W. V., O'Sullivan, M. & Chan, A. (1987). Universals and cultural differences in the judgments of facial expressions of emotion. Journal of Personality & Social Psychology, 53, 712-717.

Ekman, P., Friesen, W. V., Wallace, V., O'Sullivan, M. & Chan, A. (1988). Smiles when lying. Journal of Personality & Social Psychology, 54, 414-420.

Ellis, A. (1984). Rational-emotive therapy (RET) approaches to overcoming resistance: III. Using emotive and behavioral techniques of overcoming resistance. British Journal of Cognitive Psychotherapy, 2, 11-26.

Endicott, J., Spitzer, R. L., Fleiss, J. L. & Cohen, J. (1976). The Global Assessment Scale: A procedure for measuring overall severity of psychiatric disturbance. Archives of General Psychiatry, 33, 766-771.

Engle, D., Beutler, L. E. & Daldrup, R. J. (1991). Focused expressive psychotherapy: Treating blocked emotions. In J. D. Safran & L. S. Greenberg (Eds), Emotion, psychotherapy, and change (pp. 169-196). New York, NY: The Guilford Press.

Fernandez, D. & Allen, G. J. (1989). Test anxiety, emotional responding under guided imagery, and self-talk during an academic examination. Anxiety Research, 2, 15-26.

Fisher, W. P. (1993). Measurement-related problems in functional assessment. American Journal of Occupational Therapy, 47, 331-338.

Fischer, K. W., Shaver, P. R. & Carnochan, P. (1989). A skill approach to emotional development: From basic- to subordinate-category emotions. In Damon, W. (Ed.), Child development today and tomorrow. (pp. 107-136). San Francisco, CA: Jossey-Bass.

Fischer, K. W., Shaver, P. R. & Carnochan, P. (1990). How emotions develop and how they organize development. Cognition & Emotion, 4, 81-127.

Flowers, J. V. & Booarem, C. D. (1989). Four studies toward an empirical foundation for group therapy. Journal of Social Service Research, 13, 105-121.

Foa, E. B. & Kozak, M. J. (1991). Emotional processing: Theory, research, and clinical implications for anxiety disorders. In Safran, J. D. & Greenberg, L. S. (Eds.), Emotion, psychotherapy, and change. (pp. 21-49). New York, NY: The Guilford Press.

Folkman, S. & Lazarus, R. S. (1985). If it changes it must be a process: Study of emotion and coping during three stages of a college examination. Journal of Personality & Social Psychology, 48, 150-170.

Fox, N. A. (1991). If it's not left, it's right: Electroencephalograph asymmetry and the development of emotion. American Psychologist, 46, 863-872.



Fox, N. A. & Davidson, R. J. (1986). Taste-elicited changes in facial signs of emotion and the asymmetry of brain electrical activity in human newborns.

Neuropsychologia, 24, 417-422.

Frenkle-Brunswick, E. (1954). Further explorations by a contributor to "The authoritarian personality." In R. Christie & M. Jahoda, M., Studies in the scope and method of "The authoritarian personality" (pp. 226-275), New York, NY: Academic Press.

Freud, S. (1930). The expression of the mind and its relation to the unconscious. Paris: Gallimard.

Fridlund, A. J. (1994). Human facial expression: An evolutionary view. San Diego, CA: Academic Press, Inc.

Fridlund, A. J., Cottam, G. L. & Fowler, S. C. (1982). In search of the general tension factor: Tensional patterning during auditory stimulation. Psychophysiology, 19, 136-145.

Fuenzalida, C., Emde, R. N., Pannabecker, B. J. & Stenberg, C. (1981). Validation of the Differential Emotions Scale in 613 mothers. Motivation & Emotion, 5, 37-45.

Gellert, S. (1976). Mixed emotions. Transactional Analysis Journal, 6, 129-130.

Gelman, R. (1991). Epigenetic foundations of knowledge structures: Initial and transcendent constructions. In S. Carer & R. Gelman (Eds.), The epigenesis of mind: Essays on biology and cognition. (pp. 293-322). Hillsdale, NJ: Lawrence Erlbaum Associates, Inc.

Gelman, S. A., & Kremer, K. E. (1991). Understanding natural causes: Children's explanations of how objects and their properties originate. Child Development, *62*, 396-414.

Glasberg, R. & Aboud, F. E. (1982). Keeping one's distance from sadness: Children's self-reports of emotional experience. Developmental Psychology, *18*, 287-293.

Goleman, D. (1995). Emotional Intelligence. New York, NY: Bantam

Greenberg, L. S. & Safran, J. D. (1984). Integrating affect and cognition: A perspective on the process of therapeutic change. Cognitive Therapy & Research, *8*, 559-578.

Greenberg, L. S. & Safran, J. D. (1987). Emotion in psychotherapy: Affect, cognition, and the process of change. New York, NY: Guilford Press.

Greenberg, L. S. & Safran, J. D. (1989). Emotion in psychotherapy. American Psychologist, *44*, 19-29.

Greenberg, L. S. & Safran, J. D. (1990). Emotional-change processes in psychotherapy. In R. Plutchik & H. Kellerman (Eds.), Emotion, psychopathology, and psychotherapy. (pp. 59-85). San Diego, CA: Academic Press, Inc.

Grolnick, W. S., Bridges, L. J. & Connell, J. P. (1996). Emotion regulation in two-year-olds: Strategies and emotional expression in four contexts. Child Development, *67*, 928-941.

Guernsey, B., Coufal, J. & Vogelsong, E. (1983). Relationship Enhancement versus a traditional approach to therapeutic/preventative/enrichment parent^adolescent programs. Journal of Integrative & Eclectic Psychotherapy, *2*, 31-43.

Guest, H. & Marshall, I. (1997). The Scale of Responses: Emotions and mood in context. International Journal of Psychotherapy, 2, 149-169.

Gurucharri, C. & Selman, R. L. (1982). The development of interpersonal understanding during childhood, preadolescence, and adolescence: A longitudinal follow-up study. Child Development, 53, 924-927.

Harris, P. L. (1983). Children's understanding of the link between situation and emotion. Journal of Experimental Child Psychology, 36, 490-509.

Harris, P. L., Olthof, T., Terwogt, M. M. (1981). Children's knowledge of emotion. Journal of Child Psychology & Psychiatry & Allied Disciplines, 22, 247-261.

Harris, P. L., Donnelly, K., Guz, G. R. & Pitt-Watson, R. (1986). Children's understanding of the distinction between real and apparent emotion. Child Development, 57, 895-909.

Harris, P. L., Johnson, C. N., Hutton, D. & Andrews, G. (1989). Young children's theory of mind and emotion. Cognition & Emotion, 3, 379-400.

Harris, P. L., Lipian, M. S. & Saarni, C. (1989, reprinted 1991). Understanding emotion and experiencing emotion. In C. Saarni & P. L. Harris (Eds.), Children's understanding of emotion (pp. 241-258). New York, NY, USA: Cambridge University Press.

Harris, P. L., Olthof, T., Terwogt, M. M. & Hardman, C. E. (1987). Children's knowledge of the situations that provoke emotion. International Journal of Behavioral Development, 10, 319-343.

Harter, S. (1977). A cognitive-developmental approach to children's expression of conflicting feelings and a technique to facilitate such expression in play therapy. Journal of Consulting & Clinical Psychology, 45, 417-432.

Harter, S.. (1982). The Perceived Competence Scale for Children. Child Development, 53, 87-97.

Harter, S. (1983). To smile or not to smile: Issues in the examination of cross-cultural differences and similarities. Monographs of the Society for Research in Child Development, 48, 80-87.

Harter, S. & Buddin, B. J. (1987). Children's understanding of the simultaneity of two emotions: A five-stage developmental acquisition sequence. Developmental Psychology, 23, 388-399.

Harter, S & Whitesell, N. R. (1989). Children's reports of conflict between simultaneous opposite-valence emotions. Child Development, 60, 673-682.

Haviland-Jones, J., Gebelt, J. L. & Stapley, J. C. (1997). The questions of development in emotion. In P. Salovey & D. J. Sluyter (Eds.), Emotional development and emotional intelligence: Educational implications (pp. 233-256). New York, NY: Basicbooks, Inc.

Heesacker, M. & Bradley, M. M. (1997). Beyond feelings: Psychotherapy and emotion. Counseling Psychologist, 25, 201-219.

Heesacker, M., Conner, K. & Prichard, S. (1995). Individual counseling and psychotherapy: Applications from the social psychology of attitude change. Counseling Psychologist, 23, 611-632.

- Hestenes, L. L., Kontos, S. & Bryan, Y. (1993). Children's emotional expression in child care centers varying in quality. Early Childhood Research Quarterly, 8, 295-307.
- Holder, A. (1975). Theoretical and clinical aspects of ambivalence. Psychoanalytic Study of the Child, 30, 7-220.
- Holodynski, M. (1996). Emotional development and the interiorization of emotional expression. Journal of Russian & East European Psychology, 34, 24-32.
- Howard, K. I., Krause, M. S. & Orlinsky, D. E. (1986). The attrition dilemma: Toward a new strategy for psychotherapy research. Journal of Consulting & Clinical Psychology, 54, 106-110.
- Hyson, M. C. (1994). The emotional development of young children: Building an emotion-centered curriculum. New York, NY: Teachers College Press.
- Izard, C. E. (1971). The face of emotion. New York, N.Y.: Appleton-Crofts.
- Izard, C. E. (1972). The Differential Emotions Scale. (Unpublished manuscript).
- Izard, C. E. (1992). Basic emotions, relations among emotions, and emotion^cognition relations. Psychological Review, 99, 561-565.
- Izard, C. E. & Bartlett, E. S. (1972). Patterns of emotions: A new analysis of anxiety and depression. New York, N.Y.: John Wiley & Sons.
- Izard, C. E. & Malatesta, C. Z. (1987). Perspectives on emotional development I: Differential emotions theory of early emotional development. In J. D. Osofsky (Ed.), Handbook of infant development (2nd ed., pp. 494-554). New York, NY: John Wiley & Sons.

- Izard, C. E. & Saxton, P. M. (1988). Emotions. In R. C. Atkinson & R. J. Herrnstein (Eds.), Stevens' handbook of experimental psychology, Vol. 1: Perception and motivation; Vol. 2: Learning and cognition (2nd ed.). (pp. 627-676). New York, NY: John Wiley & Sons.
- James, W. (1890). Psychology and Psychopathology. Tubingen: Mohr.
- Jensen, M. R. (1987). Psychobiological factors predicting breast cancer. Journal of Personality, *55*, 317-342.
- Johnson, T. L. & Klinger, E. (1988). A nonhypnotic failure to replicate mood-dependent recall. Bulletin of the Psychonomic Society, *26*, 191-194.
- Jones, G. V. & Martin, M. (1992). Conjunction in the language of emotions. Cognition & Emotion, *6*, 369-386.
- Jones, G. V., Tarnof, A. & Martin, M. (1995). Validation of the Global Assessment Scale. Journal of Psychological Assessment, *2*, 443-459.
- Kalliopuska, M. (1985). Relation of ineffective communication of emotion and children's recognition of emotional expressions. Perceptual & Motor Skills, *61*, 1175-1178.
- Kashani, J. H., Suarez, L., Allan, W. D. & Reid, J. C. (1997). Hopelessness in inpatient youths: A closer look at behavior, emotional expression, and social support. Journal of the American Academy of Child & Adolescent Psychiatry, *36*, 1625-1631.
- Kernberg, O. F. (1976). Technical considerations in the treatment of borderline personality organization. Journal of the American Psychoanalytic Association, *24*, 795-829.

Kernberg, O. F. (1984). The couch at sea: Psychoanalytic studies of group and organizational leadership. International Journal of Group Psychotherapy, 34, 5-23.

Kestenbaum, R. & Gelman, S. A. (1995). Preschool children's identification and understanding of mixed emotions. Cognitive Development, 10, 443-458.

King, L. A. & Emmons, R. A. (1990). Conflict over emotional expression: Psychological and physical correlates. Journal of Personality & Social Psychology, 58, 864-877.

Klein, M. (1964). Love, hate and reparation. NYC: Norton.

Kring, A. M. & Bachorowski, J. (1999). Emotions and psychopathology. Cognition & Emotion, 13, 575-599.

Kuhlman, T., Bernstein, M., Kloss, J. & Sincaban, V. (1991). A team format for the Global Assessment Scale: Reliability and validity on an inpatient unit. Journal of Personality Assessment, 56, 335-347.

Kuhn, W. F., Myers, B. & Davis, M. H. (1988). Ambivalence in cardiac transplantation candidates. International Journal of Psychiatry in Medicine, 18, 305-314.

Kunst-Wilson, W. R. & Zajonc, R. B. (1980). Affective discrimination of stimuli that cannot be recognized. Science, 6, 43-50.

Kutner, N. G., Fair, P. L. & Kutner, M. H. (1985). Assessing depression and anxiety in chronic dialysis patients. Journal of Psychosomatic Research, 29, 23-31.

Langsdorf, P., Izard, C. E., Rayias, M. & Hembree, E. A. (1983). Interest expression, visual fixation, and heart rate changes in 2- and 8-month-old infants. Developmental Psychology, 19, 375-386.

- Lazarus, R. S. (1981). A cognitivist's reply to Zajonc on emotion and cognition. American Psychologist, *36*, 222-223.
- Lazarus, R. S. (1991a). Cognition and motivation in emotion. American Psychologist, *46*, 352-367.
- Lazarus, R. S. (1991b). Progress on a cognitive-motivational-relational theory of emotion. American Psychologist, *46*, 819-834.
- LeDoux, J. (1986). Sensory Systems and Emotion. Integrative Psychiatry, *4*, 224-229.
- LeDoux, J. (1993). Emotional Memory systems in the Brain. Behavioral and Brain research, *58*, 122-135.
- LeDoux, S. (1987). Availability of a person schema, consistency of observed behavior and causal attribution. Comportements, *7*, 81-101.
- Lee, M. (1997). Post-divorce interparental conflict, children's contact with both parents, children's emotional processes and children's behavioral adjustment. Journal of Divorce & Remarriage, *27*, 61-82.
- Leventhal, H. & Scherer, K. (1987). The relationship of emotion to cognition: A functional approach to a semantic controversy. Cognition & Emotion, *1*, 3-28.
- Mackenberg, H. & Bommert, H. (1993). MCD children's ability to recognize emotional expressions. Psychologie in Erziehung und Unterricht, *40*, 191-198.
- Malatesta, C. Z.; Jonas, R. & Izard, C. E. (1987). The relation between low facial expressivity during emotional arousal and somatic symptoms. British Journal of Medical Psychology, *60*, 169-180.



Mayer, J. D. & Salovey, P. (1997). What is emotional intelligence? In P. Salovey & D. J. Sluyter (Eds.), Emotional development and emotional intelligence: Educational implications (pp. 3-34). New York, NY, USA: Basicbooks.

McCarthy, C., Mejia, O. L. & Liu, H. T. (2000). Cognitive appraisal theory: A psychoeducational approach for understanding connections between cognition and emotion in group work. Journal for Specialists in Group Work, 25, 104-121.

McNeal, K. E. (1999). Affecting experience: Toward a biocultural model of human emotion. In A. L. Hinton (Ed.), Biocultural approaches to the emotions. New York, NY: Cambridge University Press.

Meichenbaum, D. (1992). Evolution of cognitive behavior therapy: Origins, tenets, and clinical examples. In J. K. Zeig (Ed), The evolution of psychotherapy: The second conference (pp. 114-128). New York, NY: Brunner/Mazel, Inc.

Mohr, D. C., Beutler, L. E., Engle, D. & Shoham-Salomon, V. (1990). Identification of patients at risk for nonresponse and negative outcome in psychotherapy. Journal of Consulting & Clinical Psychology, 58, 622-628.

Morris, T., Greer, S., Pettingale, K.W. & Watson, M. (1981). Patterns of expression of anger and their psychological correlates in women with breast cancer. Journal of Psychosomatic Research, 25, 111-117.

Morrow, G. R., Chiarello, R. J. & Derogatis, L. R. (1978). A new scale for assessing patients' psychosocial adjustment to medical illness. Psychological Medicine, 8, 605-610.

Muran, J. C. & Safran, J. D. (1993). Emotional and interpersonal considerations in cognitive therapy. In Kuehlwein, K. T. & Rosen, H. (Eds.), Cognitive therapies in action: Evolving innovative practice. (pp. 185-212). San Francisco, CA: Jossey-Bass Inc.

Neisser, U. (1979). The concept of intelligence. Intelligence, 3, 217-227.

Neisser, U. (1983). Components of intelligence or steps in routine procedures? Cognition, 15, 189-197.

Newman, C. F. (1991). Cognitive therapy and the facilitation of affect: Two case illustrations. Journal of Cognitive Psychotherapy, 5, 305-316.

Nummenmaa, T. (1986). Identification of pure and blended facial expressions. Psykologia, 5, 323-329.

Oatley, K. & Johnson-Laird, P. N. (1987). Towards a cognitive theory of emotions. Cognition & Emotion, 1, 29-50.

Orlinsky, D. E. & Howard, K. I. (1986). The psychological interior of psychotherapy: Explorations with the Therapy Session Reports. In L. S. Greenberg & W. M. Pinsof (Eds.), The psychotherapeutic process: A research handbook. (pp. 477-501). New York, NY: Guilford Press.

Osterhaus, S. (1999). The Familial Emotional Expression Scale for Children and Adolescents (FEECHA) and an exploration of young headache patients' emotional expression. Families, Systems & Health, 17, 229-242.

Ouss, L., Carton, S., Jouvent, R. & Widloecher, D. (1990). French translation and validation of the Differential Emotion Scale (DES): Use as emotional subjectivity investigation. Encephale, 16, 453-458.

Parke, T. (1993). The language of economic and industrial understanding for young children. Early Child Development & Care, 94, 33-49.

Parke, R. D. (1994). Progress, paradigms, and unresolved problems: A commentary on recent advances in our understanding of children's emotions. Merrill-Palmer Quarterly, 40, 157-169.

Peng, D., Yang, M. & Yang, L. (1985). Role of situational and facial clues in expression judgement. Information on Psychological Sciences, 2, 26-32.

Peng, M., Johnson, C., Pollock, J. & Glasspool, R. (1992). Training young children to acknowledge mixed emotions. Cognition & Emotion, 6, 387-401.

Pennebaker, J. W., Colder, M. & Sharp, L. K. (1990). Accelerating the coping process. Journal of Personality & Social Psychology, 58, 528-537.

Philippot, P. (1993). Inducing and assessing differentiated emotion-feeling states in the laboratory. Cognition & Emotion, 7, 171-193.

Piaget, J. (1965). The role of action in cognitive development. Child Development, 6, 33-51.

Piaget, J. (1967). Six Psychological Studies. New York: Random House.

Pittman, N. L. & Pittman, T. S. (1979). Effects of amount of helplessness training and internal^external locus of control on mood and performance. Journal of Personality & Social Psychology, 37, 39-47.

Plutchik, R. (1962). The emotions: Facts, theories and a new model. NY: Random House.

Plutchik, R. & Kellerman, H. (Eds.), (1989). The measurement of emotions. San Diego, CA: Academic Press, Inc.

Polivy, J. (1981). On the induction of emotion in the laboratory: Discrete moods or multiple affect states? Journal of Personality & Social Psychology, 41, 803-817.

Polivy, J. & Doyle, C. (1980). Laboratory induction of mood states through the reading of self-referent mood statements: Affective changes or demand characteristics? Journal of Abnormal Psychology, 89, 286-290.

Raulin, M. L. (1984). Development of a scale to measure intense ambivalence. Journal of Consulting & Clinical Psychology, 52, 63-72.

Reissland, N.. (1985). The development of concepts of simultaneity in children's understanding of emotions. Journal of Child Psychology & Psychiatry & Allied Disciplines, 26, 811-824.

Roesch, S. C. (1998). The factorial validity of trait positive affect score: Confirmatory factor analyses of unidimensional and multidimensional models. Educational & Psychological Measurement, 58, 451-466.

Roth, S. & Kubal, L. (1975). Effects of noncontingent reinforcement on tasks of differing importance: Facilitation and learned helplessness. Journal of Personality & Social Psychology, 32, 680-691.

Safran, J. D. (1984). Assessing the cognitive-interpersonal cycle. Cognitive Therapy & Research, 8, 333-347.

Safran, J. D. (1993). Breaches in the therapeutic alliance: An arena for negotiating authentic relatedness. Psychotherapy, 30, 11-24.

Safran, J. D. & Greenberg, L. S. (1988). Feeling, thinking, and acting: A cognitive framework for psychotherapy integration. Journal of Cognitive Psychotherapy, 2, 109-131.

Safran, J. D. & Greenberg, L. S. (Eds.). (1991) Emotion, psychotherapy, and change. New York, NY: The Guilford Press.

Safran, J. D., Vallis, T. M., Segal, Z. V. & Shaw, B. F. (1986). Assessment of core cognitive processes in cognitive therapy. Cognitive Therapy & Research, 10, 509-526.

Safran, J. D., Vallis, T. M., Segal, Z. V. & Shaw, B. F. (1987). Measuring session change in cognitive therapy. Journal of Cognitive Psychotherapy, 1, 117-128.

Safran, J. D., Vallis, T. M., Segal, Z. V. & Shaw, Brian F. (1993). Assessing patient suitability for short-term cognitive therapy with an interpersonal focus. Cognitive Therapy & Research, 17, 23-38.

Saks, B. R. (1985). Depressed mood during pregnancy and the puerperium: Clinical recognition and implications for clinical practice. American Journal of Psychiatry, 142, 728-731.

Salovey, P. & Mayer, J. D. (1989-1990). Emotional intelligence. Imagination, Cognition & Personality, 9, 185-211.

Saltzman, L. (1968). The obsessive personality: Origins, dynamics and therapy. New York, NY: Science House.

Savitsky, J. C., Izard, C. E., Kotsch, William E. & Christy, L. (1974). Aggressor's response to the victim's facial expression of emotion. Journal of Research in Personality, 7, 346-357.

Schachter, S. & Singer, J. (1962). Cognitive, social, and physiological determinants of emotional state. Psychological Review, 69, 379-399.

Schwartz, A. N., Campos, J. J. & Baisel, E. J. (1973). The visual cliff: Cardiac and behavioral responses on the deep and shallow sides at five and nine months of age. Journal of Experimental Child Psychology, 15, 86-99.

Schwartz, C. C., Myers, J. K. & Astrachan, B. M. (1973). Comparing three measures of mental status: A note on the validity of estimates of psychological disorder in the community. Journal of Health & Social Behavior, 14, 265-273.

Schwartz, G. E. (1982). Psychophysiological patterning and emotion from a systems perspective. Social Science Information, 21, 781-817.

Selman, R. L. (1981). The development of interpersonal competence: The role of understanding in conduct. Developmental Review, 1, 401-422.

Selman, R. L., Brion-Meisels, S. & Wilkins, G. G. (1996). The meaning of relationship in residential treatment: A developmental perspective. In H. Rosen & K. T. Kuehlwein (Eds), Constructing realities: Meaning-making perspectives for psychotherapists (pp. 455-488). San Francisco, CA: Jossey-Bass Inc.

Sincoff, J. B. (1990). The psychological characteristics of ambivalent people. Clinical Psychology Review, 10, 43-68.

Sincoff, J. B. (1992). Ambivalence and defense: Effects of a repressive style on normal adolescents' and young adults' mixed feelings. Journal of Abnormal Psychology, 101, 251-256.

Smith, C. A. & Ellesworth, P. C. (1987). Patterns of appraisal and emotion related to taking an exam. Journal of Personality & Social Psychology, 52, 475-488.

Snyder, M., Berscheid, E. & Glick, P. (1985). Focusing on the exterior and the interior: Two investigations of the initiation of personal relationships. Journal of Personality & Social Psychology, 48, 1427-1439.

Spergel, P., Ehrlich, G. E. & Glass, D. (1978). The rheumatoid arthritic personality: A psychodiagnostic myth. Psychosomatics, 19, 79-86.

Steele, H., Steele, M., Croft, C. & Fonagy, P. (1999). Infant-mother attachment at one year predicts children's understanding of mixed emotions at six years. Social Development, 8, 161-178.

Strachy, E. L. (1934). Emotion and Psychotherapy. Journal of Psychology, 3, 221-229.

Strickland, B. R., Hale, W. D. & Anderson, L. K. (1975). Effect of induced mood states on activity and self-reported affect. Journal of Consulting & Clinical Psychology, 43, 587.

Terwogt, M. M. (1987). Children's behavioural reactions in situations with a dual emotional impact. Psychological Reports, 61, 1002.

Terwogt, M. M. (1989). Do emotionally disturbed children acknowledge their own feelings? Child and Adolescent, 10, 88-92.

Terwogt, M. M. (1990). Disordered children's acknowledgment of multiple emotions. Journal of General Psychology, 117, 59-69.

Terwogt, M. M., Schene, J. & Harris, P. L. (1986). Self-control of emotional reactions by young children. Journal of Child Psychology & Psychiatry & Allied Disciplines, 27, 357-366.

Terwogt, M. M., Koops, W., Oosterhoff, T. & Olthof, T. (1986). Development in processing of multiple emotional situations. Journal of General Psychology, 113, 109-119.

Terwogt, M. M., Schene, J. & Koops, W.. (1990). Concepts of emotion in institutionalized children. Journal of Child Psychology & Psychiatry & Allied Disciplines, 31, 1131-1143.

Terwogt, M. M. & Harris, P. L. (1993). Understanding of emotion. In Bennett, Mark (Ed). The development of social cognition: The child as psychologist. (pp. 62-86). London, England UK: The Guilford Press.

Tremblay, C., Kirouac, G. & Dore, F. Y. (1987). The recognition of adults' and children's facial expressions of emotions. Journal of Psychology, 121, 341-350.

Ward, T., Hudson, S. M. & Marshall, W. L. (1994). The abstinence violation effect in child molesters. Behaviour Research & Therapy, 32, 431-437.

Watson, D. & Pennebaker, J. W. (1989). Health complaints, stress, and distress: Exploring the central role of negative affectivity Psychological Review, 96, 234-254.

Wellman, H. M., Harris, P. L., Banerjee, M. & Sinclair, A. (1995). Early understanding of emotion: Evidence from natural language. Cognition & Emotion, 9, 117-149.

Werner, H. (1948). Comparative psychology of mental development. Chicago: Follett Pub. Co.

Werner, H. & Kaplan, B. (1957). Symbolic mediation and organization of thought: An experimental approach by means of the line schematization technique. Journal of Psychology, 43, 3-25.



- Westen, D. (1994). Toward an integrative model of affect regulation: Applications to social-psychological research. Journal of Personality, 62, 641-667.
- Whitesell, N. R. & Harter, S. (1989). Children's reports of conflict between simultaneous opposite-valence emotions. Child Development, 60, 673-682.
- Wintre, M. G. & Vallance, D. D. (1994). A developmental sequence in the comprehension of emotions: Intensity, multiple emotions, and valence. Developmental Psychology, 30, 509-514.
- Wolman, R. N., Lewis, W. C. & King, M. (1971). The development of the language of emotions: Conditions of emotional arousal. Child Development, 42, 1288-1293.
- Xu, J., Meng, Z. & Wang, L. (1995). Research on autonomic physiological responses to positive and negative emotions. Psychological Science (China), 18, 134-139, 143.
- Young, J. L. (1989). Cognitive therapy for personality disorders. New York, NY: Lawrence G. Ritt.
- Youngstrom, E., Izard, C. E. & Ackerman, B. (1999). Dysphoria-related bias in maternal ratings of children. Journal of Consulting & Clinical Psychology, 67, 905-916.
- Zajonc, R. B. (1980). Feeling and thinking: Preferences need no inferences. American Psychologist, 35, 151-175.
- Zajonc, R. B., Murphy, S. T. & Inglehart, M. (1989). Feeling and facial efference: Implications of the vascular theory of emotion. Psychological Review, 96, 395-416.

Zuckerman, M. (1960). The development of an affect adjective check list for the measurement of anxiety. Journal of Consulting Psychology, 24, 457-462.

Zuckerman, M., Lubin, B., Vogel, L. & Valerius, E. (1964). Measurement of experimentally induced affects. Journal of Consulting Psychology, 28, 418-425.

Zuckerman, M., Lubin, B. & Robins, S. (1965). Validation of the multiple affect adjective check list in clinical situations. Journal of Consulting Psychology, 29, 594.

**APPENDIX A**

**Differential Emotions Scale Instructions**

## Differential Emotions Scale

### **Instructions**

This scale consists of thirty words or phrases which describe different emotions. Please indicate the extent to which each word describes the way you feel at the present time.

Record your answers by circling the appropriate number on the five-place scale below each emotion word. Presented below is a sample from the scale for indicating the degree to which each word (happy) describes the way you feel.

Happy

1	2	3	4	5
very slightly or not at all	slightly	moderate	considerably	very strongly

In deciding on your answer to a given item or word, consider the emotion connoted or defined by that word. Then, if at the present moment you feel that way moderately, for instance, you would, circle the number 3 on the scale; If you feel that way to a very strong degree, you would for instance circle 5, and so forth.

Remember, you are requested to make your responses on the basis of the way you feel at this time. Work at a good pace. It is not necessary to ponder on your answers as the first answer you check on for a given word is probably the most valid.

If you are unfamiliar with a word or phrases meaning, just circle the number 1 relative to that item.

**APPENDIX B**

**Informed Consent Form**

**Informed Consent Form**

I hereby consent to participate in this study. I understand that this study will involve filling out a questionnaire about myself, which rates emotions and which will be used to expand the scientific knowledge about emotions in general. I have been informed that completion of the questionnaire will require only a few minutes of my time and that I may decline to participate in the study, not answer any questions and have the option of withdrawing from the study at any time.

I also understand that participation in this study will not impinge on any treatment received at this center and that this information will not be used in the implementation of that treatment. I understand that refusal to participate in this study will have no bearing on my treatment at this center.

I understand that the purpose of this study to gather information regarding a group of individuals and is not concerned with a specific individual and that none of the information I provide will be disclosed to persons other than the researcher named below. I hereby consent to the publication of the studies results, as long as my identity is protected. I understand that my responses are completely confidential, that my name will not be recorded on any of the materials, other than this form which will bear my consent signature, and that information will not be shared further without consent from me. I understand that completing the scale will have no direct impact for me though it may be helpful to others in the future depending on the results. I have been informed that there is no foreseeable risk or discomfort that would result from my participation.

I have been informed that if I have concerns about the study and any of the above aspects that I should consult with a friend or family member and/or if needed, refer such

concerns to James Wrable, 2420 Panama Street, Philadelphia, PA 19103, the experimenter, who is affiliated with and conducting the research along with the Seton Hall University Department of Counseling Psychology in the College of Education and Human Services who may also be contacted at Seton Hall University, South Orange, New Jersey 07079.

This project has been reviewed by the Seton Hall University Institutional Review Board for Human Subjects Research. The IRB believes that the research procedures adequately safeguard the subject's privacy, welfare, civil liberties and rights. The Chairperson of the IRB may be reached through the Office of Grants and Research Services. The telephone number of the Office is (973) 275-2974.

I have read the material above, and any questions I asked have been answered to my satisfaction. I agree to participate in this activity, realizing that I may withdraw without prejudice at any time.

I acknowledge that I have been offered to receive a copy of this form and have \_\_\_ accepted or \_\_\_ declined such.

\_\_\_\_\_  
Participant or Authorized Representative

\_\_\_\_\_  
Date

I certify that I have presented this information to the participant and have obtained his/her consent.

\_\_\_\_\_  
Witness signature

\_\_\_\_\_  
Date

**APPENDIX C**

**Differential Emotions Scale Items Grouped into A Priori Scales (Emotion Categories)**



1. **Interest**
  6. attentive
  13. concentrating
  26. alert
2. **Joy**
  2. delighted
  11. happy
  21. joyful
3. **Surprise**
  5. surprised
  14. amazed
  25. astonished
4. **Distress**
  4. downhearted
  17. sad
  28. discouraged
5. **Disgust**
  3. feeling of distaste
  20. disgust
  22. feeling of revulsion
6. **Anger**
  10. enraged
  6. angry
  27. mad
7. **Guilt**
  1. repentant
  18. guilty
  24. blameworthy
8. **Shyness**
  7. sheepish
  19. bashful
  29. shy
9. **Fear**
  9. Scared
  5. fearful
  30. worried
10. **Contempt**
  6. contemptuous
  12. scornful
  23. disdainful

**APPENDIX D**

**Differential Emotions Scale**

Choose and circle a response from number one to five based on the degree to which you feel each of the emotion words at the Present time and based on the following scale:

1	2	3	4	5
very slightly or not at all	slightly	moderately	considerably	very strongly
<b>repentant</b>		<b>happy</b>		<b>joyful</b>
1 2 3 4 5		1 2 3 4 5		1 2 3 4 5
<b>delighted</b>		<b>scornful</b>		<b>feeling of revulsion</b>
1 2 3 4 5		1 2 3 4 5		1 2 3 4 5
<b>feeling of distaste</b>		<b>concentrating</b>		<b>disdainful</b>
1 2 3 4 5		1 2 3 4 5		1 2 3 4 5
<b>downhearted</b>		<b>amazed</b>		<b>blameworthy</b>
1 2 3 4 5		1 2 3 4 5		1 2 3 4 5
<b>surprised</b>		<b>fearful</b>		<b>astonished</b>
1 2 3 4 5		1 2 3 4 5		1 2 3 4 5
<b>contemptuous</b>		<b>angry</b>		<b>alert</b>
1 2 3 4 5		1 2 3 4 5		1 2 3 4 5
<b>sheepish</b>		<b>sad</b>		<b>mad</b>
1 2 3 4 5		1 2 3 4 5		1 2 3 4 5
<b>tentative</b>		<b>guilty</b>		<b>discouraged</b>
1 2 3 4 5		1 2 3 4 5		1 2 3 4 5
<b>scared</b>		<b>bashful</b>		<b>shy</b>
1 2 3 4 5		1 2 3 4 5		1 2 3 4 5
<b>enraged</b>		<b>disgust</b>		<b>worried</b>
1 2 3 4 5		1 2 3 4 5		1 2 3 4 5